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Digitalisation Driven Strategic Renewal in Small and Medium Sized Enterprises in Finnish Manufacturing

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Abstract:

This thesis aims to answer how Finnish manufacturing SMEs adapt to their changing business environment. The thesis approaches this by studying how these companies sense their business environment and what facilitates seizing opportunities and transforming a company to enable strategic renewal. The thesis also studies how these companies have reacted to the digital change in their environment. Finally the thesis aims to find hindering factors for strategic renewal among these companies.

The thesis was made as a qualitative and inductive research with interviewing twenty-five company representatives from twenty-three different Finnish manufacturing SMEs. The analysis of the interview data followed the methodology of Gioia, Corley and Hamilton (2013).

The literature review provides existing knowledge about SMEs' adaption to digitally changing business environments, ambidexterity as a concept to adapt to continuously changing environment and dynamic capabilities as a mechanism for ambidexterity. The literature review provides a comparison point for the findings of this thesis.

The main findings show that Finnish manufacturing SMEs utilise their stakeholders' help to adapt to their business environments. The companies' top management, especially the CEOs, are facilitating strategic renewal in the companies. The CEOs facilitative role points out in every part of the dynamic capabilities framework. To react to the recent digital changes, the companies have made competitive developments both internally and externally. The companies' own capabilities and resources were identified as hindering factors for strategic renewal.

This thesis provides implications for Finnish manufacturing SMEs to invest in their managers' leadership skills and education, exploit more their stakeholders, invest in digital technologies, reform business models and internal operation and get rid of unwillingness to change. For Tekes, this thesis suggests to increase its focus on helping SMEs to sense new ideas and help them to create new capabilities and inter-organisational relationships by organising networking and educational events and hiring supports for the companies.

Keywords: SME, ambidexterity, dynamic capabilities, strategic renewal

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Tämän diplomityön tavoite on vastata siihen, kuinka suomalaiset valmistavan teollisuuden pk-yritykset adaptoituvat niiden muuttuvaan liiketoimintaympäristöön. Tämä diplomityö lähestyy tätä tutkimalla, kuinka nämä yritykset aistivat liiketoimintaympäristöään sekä mitkä tekijät fasilitoivat mahdollisuuksiin tarttumista ja yritysten transformaatiota toteuttaakseen strategista uudistumista. Työ tutkii myös kuinka nämä yritykset ovat reagoineet viimeaikaisiin digitaalisiin muutoksiin niiden liiketoimintaympäristössä. Viimeisenä, tämä diplomityö etsii hidastavia tekijöitä strategiselle uusiutumiselle näiden yritysten joukossa.

Tämä diplomityö toteutettiin kvalitatiivisena ja induktiivisena tutkimuksena, jossa haastateltiin kahtakymmentä vuotta yrityksen edustajaa kahdestakymmenestä kolmesta valmistavan teollisuuden pk-yrityksestä Suomessa. Haastatteludatan analysointi tehtiin Gioian, Corleyn ja Hamiltonin (2013) metodologian mukaisesti.

Kirjallisuuskatsaus esittelee olemassa olevaa tietoutta pk-yritysten adaptoitumisesta digitaalisesti muuttuvaan toimintaympäristöön, kaksikäätisyydestä jatkuvasti muuttuvan toimintaympäristön adaptoitumisen konseptina sekä dynaamisista kyvykkyyksistä kaksikäätisyyden mahdollistavana mekanismina. Kirjallisuuskatsaus luo vertailupohjan tämän diplomityön löydöksille.

Päälöydökset osoittavat, että suomalaiset valmistavan teollisuuden pk-yritykset hyödyntävät sidosryhmiensä apua adaptoituakseen liiketoimintaympäristöönsä. Yritysten ylin johto, erityisesti toimitusjohtajat, fasilitoi strategista uusiutumista näissä yrityksissä. Toimitusjohtajien fasilitoiva rooli korostuu kaikissa dynaamisten kyvykkyyksien osissa. Reagoidakseen viimeaikaisiin digitaalisiin muutoksiin, yritykset ovat tehneet kilpailullisia kehityksiä sekä sisäisesti että ulkoisesti. Yritysten omat kyvykkyydet sekä resurssit löydettiin strategista uusiutumista hidastavina tekijöinä.

Tämä diplomityö ehdottaa päätelminä suomalaisille valmistavan teollisuuden pk-yrityksille investoida ylimmän johtonsa johtamistaitoihin ja koulutukseen, hyödyntää enemmän sidosryhmiä, investoida digitaalisiin teknologioihin, uudistaa liiketoimintamallit ja sisäiset operaatiot sekä päästää irti muutoksen vastahakoisuudesta. Tekeksille tämä diplomityö ehdottaa lisäävää keskittymistä auttaakseen pk-yrityksiä aistimaan mahdollisuuksia sekä auttamaan niitä kehittämään uutta osaamista ja lisäämään yritysten välisiä suhteita organisoimalla verkostoitumis- ja koulutuksellisia tapahtumia sekä palkkausapua yrityksille.

Avainsanat: pk-yritys, kaksikäätisyys, dynaamiset kyvykkyydet, strateginen uusiutuminen

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ABBREVIATIONS

CEO Chief Executive Officer

ERP Enterprise Resource Planning

IoT Internet of Things

IT Information Technology

R&D Research and Development

SME Small and Medium Sized Enterprise

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1. INTRODUCTION

1.1 Background and motivation

In different times, there have always been larger factors that have created changes to many industries in a broader perspective. Lately this factor that has forced companies to change has been digitalisation. Digitalisation has created new opportunities but also threats as a result of changing business environment (Ward et al., 1995; Chang et al., 2003). Companies must react to this environmental change to stay competitive and sustain their competitive advantage. Since the technology develops at such a fast pace, the need to change has become more continuous (Kriz et al., 2014).

A company's strategy, capabilities and the business environment co-evolve. Creating a consistent and coherent strategy accommodated with innovation creates competitive advantage for a company. Thus, a good strategy provides a guideline how a company will exploit its scarce assets to support market needs and overtake its competitors. (Teece, 2014) There is never a perfect fit between a company's strategy, organisational structure, people, processes and the business environment (Simanis & Hart, 2009) and thus competitive advantage has become more temporary than before creating a need for continuous strategic renewal (Kriz et al., 2014).

Companies' long-term survival is based on periodically reorienting themselves by adopting new strategies and structures that the changing environment requires (Tushman & O'Reilly, 1996). To adapt to the changing business environment, companies need to create radical innovations to create value in new ways for their customers. This requires sensing ideas and new opportunities from the business environment and seizing these opportunities resulting to new products and services. Radical innovations and new kind of value creation often require also changes in companies' assets, routines and structures (Teece, 2007; Teece, 2014). At the same time, companies need to take care of their existing business and its development and this creates paradoxical challenges for companies (Smith, 2014). This creates the need for

companies to match the new and old and transform the company into a functioning entity. Ambidexterity is a concept that focuses on simultaneously creating new radical innovations and exploiting current products. Dynamic capabilities framework is a mechanism that helps companies to be more ambidextrous by sensing and seizing opportunities and transforming a company to enable strategic renewal.

Many companies see innovation too narrowly believing it is only new product development from traditional research and development operations. This kind of narrow view can lead to a systematic erosion of competitive advantage and make the companies in the same industry look more similar with each other in the longer run. Companies begin to search for opportunities from the same places and seizing the same opportunities with each other. This kind of narrow perspective of innovation blinds companies from opportunities and leaves them vulnerable for competitors with broader perspectives. Business innovation is more about new value than just new things. Innovating within this dimension can create new revenue streams, develop new systems and capture value from interactions with stakeholders. (Sawhney et al., 2006)

SMEs represent the majority of companies in most countries and thus they play a significant role in the economic growth of these countries (Musso & Francioni, 2014). SMEs face the same challenges as large companies but they do not necessarily have the required capabilities and resources to cope with constantly changing business environments (Herdon et al., 2012; Huovinen, 2016). Changes in a company's external environment can be difficult to anticipate and continuous adaptation to the environment can disturb a company's routines to perform current tasks well (Agarwal & Helfat, 2009).

The existing literature mainly focuses on how large companies perform strategic renewals. SMEs do not necessarily have the same resources and capabilities than large companies and this creates an interesting question, as how SMEs renew themselves and what kind of mechanisms they use to overcome possible issues resulting from their smaller size. The motivation behind this thesis is to study, how Finnish manufacturing SMEs adapt to their changing business environment using digitalisation as a context. These results will help to understand how these companies create new kind

of value and find growth by fitting their existing asset bases to changing business environments. In more academic perspective, the research aims to find out facilitating factors for ambidexterity (Tushman & O'Reilly, 1996; Gibson & Birkinshaw, 2004) and dynamic capabilities (Teece et al., 1997) among Finnish manufacturing SMEs.

1.2 Research question and objectives

The main research question of this thesis is:

How Finnish manufacturing SMEs adapt to their business environment?

The research objectives are:

1. How Finnish manufacturing SMEs sense their business environment?
2. What facilitates seizing opportunities and transforming to enable strategic renewal among Finnish manufacturing SMEs?
3. How Finnish manufacturing SMEs have reacted to the digital change in their business environment?
4. What are the hindering factors for strategic renewal with Finnish manufacturing SMEs?

1.3 Scope of the thesis

The scope of this thesis focuses on Finnish manufacturing SMEs. The companies are selected from Tekes' client companies who have received Tekes-funding or other support from Tekes lately. Previous research has focused more on the strategic renewal of large companies with larger resources. Because SMEs face the same competition as their larger counterparts, it is interesting to see how SMEs with smaller resources cope with digitally changing business environment. The scope of the thesis is on manufacturing industry, as it is a traditional and more slowly changing industry where digitalisation has lately created changes. The manufacturing industry was selected because there the changes happen slowly enough to recognise strategic renewal in these companies compared to information technology companies where the changes can take place in only a few days.

1.4 Structure of the thesis

This thesis consists of six chapters. The first chapter introduces the background, motivation, research problem and the scope of the thesis. The second chapter is a literature review consisting of the existing knowledge and literature about the topic of this thesis. It presents current knowledge about ambidexterity as a key concept to cope with changing business environments and dynamic capabilities framework as a mechanism for ambidexterity. The third part of the literature review brings up differences between SMEs and large companies on strategic renewals. In the end of the second chapter, the literature review is synthesised to create a comparison point for the research.

The third chapter shows how the qualitative research was made and what kind of research choices were selected for this thesis. It tells what kind of companies was used in the research and how the interviewees varied between the companies based on job titles. The third chapter also shows how the data was analysed after the interviews. The fourth chapter shows the findings of the research with evidence from the interviews.

The fifth chapter discusses the findings in the light of the existing literature. The fifth chapter also makes suggestions for Finnish manufacturing SMEs and Tekes, the Innovation Funding Agency of Finland, who provided the research problem for this thesis. The final chapter concludes the thesis by showing the key results, discussing the contributions of the research and highlighting the key implications of the thesis. Finally, it brings up the limitations of the research and suggests avenues for future research. After the final chapter, the references and appendixes are presented.

2. LITERATURE REVIEW

2.1 Ambidexterity to cope with changing business environment

2.1.1 Introducing ambidexterity as a concept

Ambidexterity means that a company has always opposite demands in its tasks to be competitive today but also remain competitive tomorrow. This creates trade-offs to companies that cannot entirely be eliminated but can be managed to create long-term competitiveness. (Gibson & Birkinshaw, 2004) According to Teece (2014) ambidexterity means that a company has to simultaneously perform incompatible activities. A company has to create new products and services to acquire new customers and markets and at the same time improve existing products and services to serve existing customers and markets. It also means hiring top talent while retaining current staff as well as introducing new processes simultaneously with improving current operations. (Teece, 2014)

There are three different types of ambidexterity. Duncan (1976) introduced sequential ambidexterity by suggesting that companies must shift their structures over time to gain innovation and efficiency simultaneously. Tushman and O'Reilly (1996) stated that sequential ambidexterity might not be efficient enough in case of rapid change. They argued that companies must have their own autonomous exploitative and explorative subunits with their own structures, processes, people and cultures. This is called structural ambidexterity. Gibson and Birkinshaw (2004) stated that companies could be ambidextrous by permitting their employees to divide their time between exploitative and exploratory activities by their own judgement. This is called contextual ambidexterity.

For a company to adapt to its changing environment, it has to exploit existing assets and capabilities and simultaneously explore new technologies and markets to avoid

becoming irrelevant by changing environment. This means configuring and reconfiguring organisational resources to capture existing and new opportunities. Exploitation is about efficiency, increasing productivity, control, certainty and variance reduction. Exploration is about search, discovery, autonomy, innovation and embracing variation. Ambidexterity is about doing both of these two. (O'Reilly & Tushman, 2008; March, 1991)

Exploration and exploitation create contradictory demands to a company and thus create strategic tensions. Exploitation activities seek incremental innovations to existing knowledge and capabilities by increasing efficiency and continuous improvements to existing products. Exploration activities seek radical innovations through experiments and research and development activities to create new knowledge, markets and opportunities. Even though both exploitation and exploration seek innovations, they require conflicting processes and mind-sets. (Lewis et al., 2014)

Exploration activities enable companies to create long-term success by novel innovations. Exploitative activities give companies short-term success by creating operational efficiencies in current products. Exploitation gives stability and efficiency that enable exploration. Exploration creates change and renewal, reduces long-term risks and improves exploitation's execution. (Smith, 2014) Managers should seek a "both and" mind-set that stress the importance of exploration to create new products and services that serve as base for exploitation in the future and simultaneously increasing efficiency and profitability with exploitative activities that fund the basic research and development and on-going exploration. (Lewis et al, 2014)

Ambidexterity is typically more valuable for companies that are under environmental uncertainty, increased competition and for companies with more resources, which are often larger companies. Ambidexterity is positively associated with company performance, especially growth, financial performance and increased company innovation. Even though, investing too much or too little into ambidexterity can become costly for a company. (O'Reilly & Tushman, 2013)

Exploration and exploitation are inconsistent with one another, but they are both necessary for long-term success (March, 1991; Smith, 2014). These two types of actions perform as seeds for one another (Smith, 2014). Paradoxical tensions between these

two actions can remain latent in a company but become often salient in response to environmental conditions such as scarcity and change (Smith & Lewis, 2011).

Pursuing in both exploration and exploitation helps companies to overcome structural inertia and refrains them from accelerating explorations without gaining benefits (Levinthal & March, 1993). Both types are important for organisational survival in long-term. Exploratory innovations are designed to meet the needs of emerging customers and markets that require new knowledge and sometimes departure from existing knowledge and routines. Exploratory innovations offer new designs, can require implementation of new systems and procedures and attract new customers through new channels. Exploitative innovations meet the needs of existing markets and customers by deepening existing knowledge with established competences and improving design. (Jansen et al., 2009)

Smith (2014) says that managers have a key role in a company in creating ambidextrous strategies. Operational capabilities and competencies to compete in existing markets are not enough for a company's long-term success. From a strategic perspective, companies must also recombine and reconfigure assets and organisational structures to adapt to emerging opportunities as new markets and technologies. Managers must have capabilities to both explore and exploit to help the company to reconfigure existing assets and capabilities to seize new opportunities. These managerial capabilities are different from those needed to only exploration or exploitation. If managers do not have the capabilities to be ambidextrous, path dependency dynamics and structural inertia drive the company towards only exploitation and thus in the long run towards failure. (O'Reilly & Tushman, 2008; Tushman & O'Reilly, 1996)

Managers must constantly work with a dual agenda supporting the core business and innovation units simultaneously, which requires managers to work inconsistently related to the company's strategy sometimes (Tushman et al., 2011). Managers' cross-functional interfaces increase their cooperation between managers and employees from different functions, units and organisational levels. These other managers and employees differ in their relationship and view to the company's existing strategy, goals, interests and values. Participating in cross-functional interfaces forces managers to think outside of their own perspectives and thus enable them to see the

larger picture of the company by seeing other managers' perspectives, beliefs and goals. (Mom et al., 2009) Cross-functional interfaces also create trust between managers and enable them to learn from each other (Gibson & Birkinshaw, 2004) and this way refine and increase their skills and expertise (Jansen et al., 2005). By confronting and resolving conflicts regarding different organisational units and levels, managers are able to behave more ambidextrously (Mom et al., 2009).

Management's integration and involvement with the business units is necessary for the success of new innovations (Helfat & Martin, 2015). Management integration enables strategic coherence and balanced resource allocation, which leads to necessary knowledge exchange and allocation between exploratory and exploitative functions. With integration of different skills and experience, ambidextrous organisations can change product subsystems and linkages between subsystems underlying both types of innovations. (Jansen et al., 2009) Organisational integration mechanisms enable leveraging common resources and obtaining synergies between exploratory and exploitative functions and thus creating new value through linking new knowledge sources (Tushman et al., 2010; Cohen & Levinthal, 1990). As the environment and a company's strategy change over time, these integration mechanisms are essential for ambidextrous companies (Postrel, 2002).

Solving issues from both exploitative and exploratory units jointly forces managers to confront issues that come from both units creating synergies and solving overarching issues between the units. By integration practices managers can sustain a strategic paradox and create a flexible context for decision-making. Integration practices also help managers to shift their attention between product level and organisational level issues creating an adaptive context that motivates to flexible decisions. (Smith, 2014) Integrated management teams engage in different interrelated processes that reflect the complexity and dynamism of strategic decision-making that cannot be captured by any single process dimension (Lubatkin et al., 2006). When managers' integration mechanisms fail, the managers might harm the exploratory functions with systems, routines and thinking from the core business. This can lead to insufficient resource allocations for the exploratory functions or it can be overwhelmed by the core business. (O'Reilly & Tushman, 2008)

Ambidexterity creates organisational tensions between innovation units and core business units as they have different strategies and goals (Smith, 2014; O'Reilly & Tushman, 2008; Jansen et al., 2009). These can be described as strategic paradoxes. Smith (2014) says that implementing strategic paradoxes is challenging and complex for managers. But successfully implementing them, a company can build dynamic capabilities, increase creativity and enable sustainability. (Smith, 2014) The key factor to succeed both in exploration and exploitation is the management's ability to resolve these tensions between these different types of units (O'Reilly & Tushman, 2008).

Ambidexterity requires managers to continuously refine and renew their skills and knowledge. They must have skills to host contradictions. This means that managers must have skills and motivation to sense, understand and pursue conflicting opportunities, needs and goals (O'Reilly & Tushman, 2004) engaging managers to paradoxical thinking (Gibson & Birkinshaw, 2004). Ambidextrous managers are multitaskers who fulfil different roles and tasks within the organisation. Gibson and Birkinshaw (2004) say that this is obtained more easily with generalist managers than specialists. (Mom et al., 2009)

Senior management team has a crucial part in ambidexterity. Diversity in managers' experience enhances ambidexterity (Mom et al., 2009) whereas lack of it reduces ambidextrous actions. Managers' incentive system also has effects on ambidexterity. When incentives are designed to reward line-of-business instead of the whole business, managers tend to focus on short-term results instead of long-term collaboration. (O'Reilly & Tushman, 2008) When managers have more decision authority, they become more aware and recognise more diversely organisational, market and technological opportunities and needs and thus understand better how to act upon them. This enables managers to pursue diverse goals. Managers' responsibility motivates them to divide their time between alignment-oriented and adaptability-oriented work. This also enhances managers' motivation to renew and refine their existing skills and expertise, as they have to rely on their own capabilities. (Mom et al., 2009; O'Reilly & Tushman, 1996)

Exploration and exploitation require different kind of strategic management. Formal processes enable disciplined resource commitments needed for exploitation. Fast-paced and decisive efforts on the other hand help anticipate change. Excessive strategic planning has the risk of creating inertia that inhibits responsiveness to changes in the environment as the sources of competitive advantage of a company become entrenched. On the other hand, too excessive focus on change can harm the development of a company's core competences, which are the key for adaptation and learning. Managers must recognise these tensions and have the skills to cope with them. (Lewis et al., 2014) O'Reilly and Tushman (2008) say that managers' capabilities to understand and agree of the importance of both exploration and exploitation is a crucial factor for successful ambidexterity.

Resource management and allocation are important with ambidexterity (Tushman et al., 2011; Smith, 2014). Because resources are scarce, successful managers shift resources between innovation and core business units (Tushman et al., 2011) and make trade-offs to resource allocation (Smith, 2014). Resources are not just financial resources but also human resources and managers' own time (Smith, 2014). According to Teece (2014) organisational mutation requires entrepreneurial managers. O'Reilly and Tushman (2008) add that exploratory units require sufficient resources to level up with the mature business and this requires managers' integration to strategic issues and tactical integration to leverage company assets. According to Binns and colleagues (2014), companies must use experiments to explore future opportunities (Martin, 2011). Lubatkin and colleagues (2006) talk about these experiments as strategic initiatives that experiment new skills and market opportunities triggered by shifts in factor or product markets.

Exploration and exploitation require different structures and competencies, which create paradoxical challenges to companies. Exploration needs flexibility, decentralisation and loose culture, whereas exploitation requires efficiency, centralisation and tight culture (Benner & Tushman, 2003). Jansen and colleagues (2009) argue that to concurrently achieve exploration and exploitation, a company needs to have structural differentiation. (Jansen et al., 2009) Gupta and colleagues (2006) argue that the scarcer the resources to pursue exploration and exploitation, the greater the likelihood that the two different functions become mutually exclusive. Gupta and col-

leagues (2006) suggest that exploration and exploitation are two ends of an inverted U-shaped continuum and a company can reach its maximal long-term success by performing equally both exploration and exploitation. Kauppila (2010) argues that in reality companies create ambidexterity through combinations of structural and contextual antecedents.

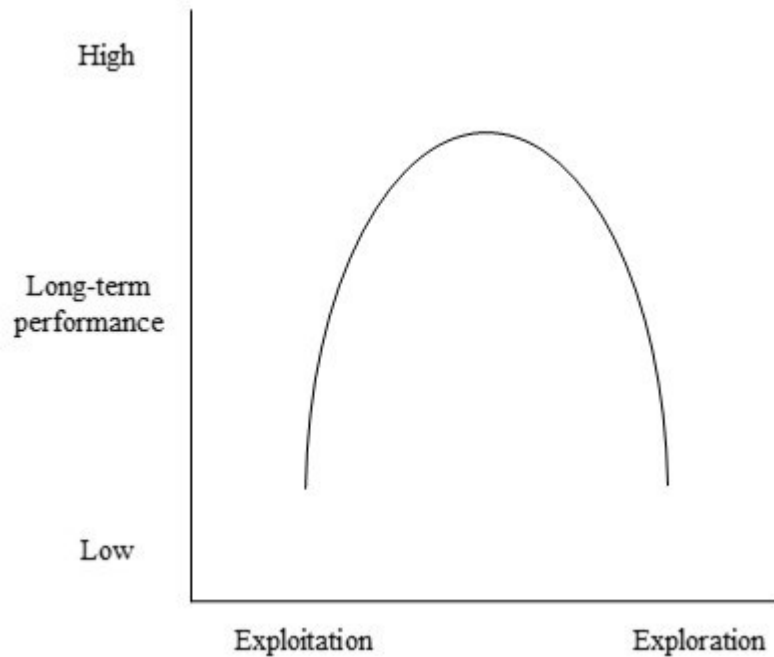


Figure 1: *An inverted U-shaped continuum by Gupta and colleagues (2006).*

Tushman and colleagues (2011) suggest that managers have to embrace tensions between old and new (Mom et al., 2009) and create constant creative conflicts to the top management. They also say that companies must develop an overarching identity that is broader than just the core business. Tushman and colleagues (2011) also argue that to successfully gain ambidexterity managers must embrace inconsistency by understanding the differences between innovation units and the core business and measure their performance with different standards. Teece (2014) continues that companies must address tensions and pressures both from the internal processes and from the business environment to embrace dynamic capabilities.

2.1.2 Structural differentiation to be ambidextrous

Structural ambidexterity means separating exploratory efforts from exploitative into different organisational units. Explorative unit focuses on new radical innovations by discovery and experiments while exploitative unit focuses on extending and improving current products and capabilities. (Gibson & Birkinshaw 2004; Lewis et al., 2014; Jansen et al., 2009; O'Reilly & Tushman, 2004) O'Reilly and Tushman (2013) say that structural ambidexterity consists of autonomous units, targeted integration to leverage assets, a vision to justify the need for both exploration and exploitation and capable leadership (O'Reilly & Tushman, 2008) that is able to manage paradoxical tensions. The different structural units have different competencies, systems, incentives processes and cultures that are internally aligned. Even though the units are separated, they still share common strategic intent, an overarching set of values and linking mechanisms to leverage shared assets. (O'Reilly & Tushman, 2008)

Jansen et al. (2009) say that structural differentiation as separate organisational units can help ambidextrous companies to address paradoxical demands that being ambidextrous brings. Structural differentiation enables both units to concentrate on their own tasks without having to cope with opposite needs. By separating exploratory and exploitative tasks into separate units, these units can have their required mind-sets, time horizons and motivations built on entirely on emerging or mainstream business (Gilbert, 2005; Raisch et al., 2009). Even though separating exploitative and exploratory tasks into separate units, integration between these units is important for a company to remain ambidextrous (Jansen et al., 2009).

Even though exploration and exploitation would be separated into different organisational units, they need to be in a balance. Too much focus on exploration can lead to pursuing bad ideas and reducing the improvement of existing capabilities, whereas too much focus on exploitation can lead to missing important opportunities and creating structural inertia (He & Wong, 2004). The balance of the two activities depends on the environment of a company. In slow moving environments exploration activities' need is reduced and vice versa. In slow moving environments, continuous experimentation can be insufficient and costly. (Simanis & Hart, 2009)

A failed exploration attempt can disrupt the existing routines of a company and harm the existing business (He & Wong, 2004). March (1991) argues that the effective selection of forms, routines and practices is important for companies to survive but the creation of new alternative practices is equally important especially in a changing environment. March (1991, p. 72) says: “Because of the links among environmental turbulence, organizational diversity, and competitive advantage, the evolutionary dominance of an organizational practice is sensitive to the relation between the rate of exploratory variation reflected by the practice and the rate of change in the environment.”

The structural separation of exploitative and exploratory units is not enough. The important thing is to enable integration between these units in a value-adding way (O'Reilly & Tushman, 2008). This integration creates new combinations of innovations to both units by connecting ideas and knowledge. Jansen and colleagues (2009) argue that integration between the two units is the crucial factor to create value and achieve ambidexterity. They suggest that management must understand their role to allocate scarce resources and be able to recombine organisational capabilities and assets between the units. March (1991) say that this raises difficulties that create trade-offs. Jansen and colleagues (2009) also say that a company needs formal and informal interaction channels to enable knowledge sharing flexibly along the organisation. (Jansen et al., 2009) Raisch and colleagues (2009) argue that managing these “differentiation-integration tensions” is an important dynamic capability for creating and sustaining structural ambidexterity.

O'Reilly and Tushman (2013) argue that being ambidextrous is more a leadership issue than a structural issue. Simultaneous exploitation and exploration requires managers to manage two inconsistent alignments simultaneously. To successfully manage this, managers must articulate a clear vision and strategic intent to justify the ambidextrous form. Managers also need to provide a common identity between the separated units that have different competencies, incentives and culture, increasing the probability of conflicts and tensions between the units. (O'Reilly & Tushman, 2008) He and Wong (2004) suggest that if these arising tensions of different types of units are not well managed, the interaction effect between exploration and exploitation may turn out to be negative.

To sense and seize new opportunities through simultaneous exploitation and exploration, a company should not limit its efforts to only intra-organisational efforts. To enhance sensing and seizing of opportunities, companies should also create structural ambidexterity in inter-organisational or community settings. (O'Reilly & Tushman, 2013; Raisch et al., 2009) Kauppila (2010) argues that internal ambidexterity and external approaches to ambidexterity are compliments rather than substitutes.

2.1.3 Individuals creating contextual ambidexterity

Gibson and Birkinshaw (2004) introduced the concept of contextual ambidexterity by proposing that ambidexterity could be at an individual level. Gibson and Birkinshaw (2004, p. 209) define contextual ambidexterity as: "Contextual ambidexterity is the behavioural capacity to simultaneously demonstrate alignment and adaptability across an entire business unit.". The difference with contextual ambidexterity compared to structural ambidexterity is the emphasis on individuals making the adjustments between exploration and exploitation. To succeed, this requires that the individuals agree that their business unit is both aligned and adaptable. (O'Reilly & Tushman, 2013)

Gibson and Birkinshaw (2004) argue that contextual ambidexterity is a more sustainable model than structural ambidexterity because adaptation affects the whole business unit instead of a separate exploratory unit. It also helps on communication issues between separate units. Contextual ambidexterity requires a company to have processes or systems that enable and encourage individuals to make their own judgements about dividing their time between the parallel demanding tasks of alignment and adaptability. In a contextually ambidextrous business unit, every individual can make incremental developments to existing products in his or her functional area but simultaneously is looking for changes in the task environment and is capable of acting accordingly in an exploratory way. (Gibson & Birkinshaw, 2004)

To gain contextual ambidexterity, a company needs organisational processes and systems that promote stretch, discipline and trust to enable individual's adjustments (O'Reilly & Tushman, 2013). Smith (2014) highlights the role of managers to take responsibility of both current products and new innovations and to create integrative

practices to create linkages and synergies between the two different strategic domains.

Gibson and Birkinshaw (2004) argue that adaptability to the environment comes from highly capable individuals, setting high but not unrealistic targets and avoiding too much formalisation. They continue that managers' support and leadership skills are critical to create successful ambidexterity. If a business unit lacks managers' support and recognition, the innovative ideas may be left without required resources and new ideas and opportunities are not seized (Gibson & Birkinshaw, 2004).

Gibson and Birkinshaw (2004) say that to allow individuals to make their own judgements about alignment-oriented and adaptation-oriented tasks, they need to be both valued and rewarded. Ghoshal and Bartlett (1994) say that there are four interdependent attributes: discipline, stretch, support and trust that enable contextual ambidexterity. They say that individuals need discipline and stretch to push them to ambitious goals but at the same individuals need support and trust to create a cooperative environment. Ghoshal and Bartlett (1997, p. 151) conceptualise organisational context as "the yin and yang of continuous self-renewal". With this they mean that a company needs a balance between hard elements and soft elements. Too much emphasis on the hard elements creates burnout and disillusionment among employees but too much emphasis on the soft elements on the other hands creates a "country club" atmosphere where no work gets done. Gibson and Birkinshaw (2004) builds on Ghoshal and Bartlett's argument saying that the correct amount of hard and soft elements creates a supportive environment where individuals engage in exploratory and exploitative actions and this can create contextual ambidexterity.

2.2 Dynamic capabilities as a key mechanism for ambidexterity

2.2.1 Introducing dynamic capabilities

Companies can have competitive advantage at a certain point in time by owning certain scarce assets. This creates success for a company at that moment but as the environment changes, especially by global competition, the ownership of scarce difficult-

to-imitate assets does not give sustainable competitive advantage. For long-term success companies need dynamic capabilities to continuously create, extend, upgrade and protect a company's unique asset base. Dynamic capabilities can be divided into three functions: sensing and shaping opportunities and threats, seizing the sensed opportunities and transforming a company by reconfiguring its tangible and intangible assets. Sensing includes identification, development, co-development and assessment in opportunities related to customer needs. Seizing includes mobilisation of resources to seize sensed opportunities and capture value from doing so. Transforming includes continuous renewal by reconfiguring company's assets. (Teece, 2014) Helfat and Martin (2015, p. 1281) describe dynamic capabilities as "the capabilities with which managers create, extend, and modify the ways in which firms make a living". Dynamic capabilities are a key enabler for a company competing in both mature and emerging markets and thus being ambidextrous (O'Reilly & Tushman, 2008).

Dynamic capabilities include organisational capabilities to adapt to changing customer and technological needs. They also embrace a company's ability to shape its business ecosystem, develop new products and processes and create new viable business models. By these "orchestration" actions companies can successfully innovate and capture sufficient value enabling long-term financial success. (Teece, 2007) In other words dynamic capabilities emphasize that it is not just how you play the game, it is also a function of the assets of the player and how these assets are deployed and redeployed in a continuously changing game (Teece et al., 1997). A company needs also a good strategy and idiosyncratic resources in addition to dynamic capabilities to create competitive advantage (Teece, 2014).

In dynamic capabilities, the term "dynamic" refers to the capacity to renew a company's competences to adapt to the changing business environment as well as to create innovative responses to difficultly visible future market and competition demands. The term "capabilities" refers to the role of a company's management to adapt, integrate and reconfigure internal and external organisational skills, resources and competences to match the changing environment. Thus, dynamic capabilities reflect a company's ability to create and gain new and innovative sources of competitive advantage with its path dependencies and existing market positions. (Teece et al., 1997)

Dynamic capabilities include “asset orchestration” by searching for resources and capabilities, as selecting, investing and deploying in the skills and resources and finally reconfiguring them. This kind of asset orchestration creates value for companies in changing environments by helping them to adapt to the changing conditions. (Helfat & Martin, 2015) As customers, competitors, markets and technologies change, engaging in continuous or semi-continuous sensing, seizing and transforming is essential (Teece, 2007).

Dynamic capabilities support companies’ long-term success by enabling companies to create, deploy and protect their intangible assets. Teece (2007) talks about the microfoundations of dynamic capabilities; the skills, processes, procedures, organisational structures, decision-making rules and disciplines that support companies’ sensing, seizing and reconfiguring actions are difficult to develop and deploy. Companies that have strong dynamic capabilities are entrepreneurial in these microfoundations. This means that the more successful companies proactively shape their business ecosystems with innovations instead of only adapting to the changes in the environment. (Teece, 2007)

Dynamic capabilities help companies to reach evolutionary fitness in addition to technological fitness (Teece, 2007). Organisational capabilities lie in the routines, structures and processes of a company. The routines can be seen in the way an organisation operates and in its structures, cultures and mind-sets. Existing capabilities reflect a company’s ability to compete in the current environment that is gaining technological fitness. The challenge for managers is to both improve and refine these capabilities and reconfigure these assets as the environment changes to gain evolutionary fitness. (O’Reilly & Tushman, 2008)

Dynamic capabilities explicate strategic considerations and decision-making disciplines in addition to traits and processes from traditional approaches towards gaining competitive advantage and a favourable positioning in an ecosystem. With sensing and seizing opportunities and reconfiguring assets continuously a company can stay competitive and renew itself as the markets and technologies transform. Having and using dynamic capabilities, a company with its management can first spot opportunities to earn financial profits, make decisions and execute on the opportunities and

stay agile to continuously refresh itself. (Teece, 2007) Dynamic capabilities include entrepreneurial activities as identifying unsatisfied demands and mobilising resources to satisfy these needs in a profitable way. Continuously performing these types of entrepreneurial activities are the central point of dynamic capabilities. (Teece, 2014)

Equalising dynamic capabilities between companies is difficult. They can be grounded in companies' "signature processes" that come from a company's unique history and personnel. The uncertainty of causal linkages makes dynamic capabilities difficult to imitate even if companies would copy each other's processes. Also, the central activities in dynamic capabilities are difficult to codify and imitate that way. (Teece, 2014)

Dynamic capabilities enable a company to develop and produce differentiated products and services to both new and existing markets simultaneously generating superior profits. By integrating, building and reconfiguring assets and resources, a company can maintain leadership in shifting business environments. Dynamic capabilities enable a company to renew itself and leverage its services and resources even after changes in its business environment. (Teece, 2014)

Dynamic capabilities enable managers to make assumptions of developments in customer demand trends, business problems and technologies. With these assumptions, a company can validate and react to these by reconfiguring resources and assets and activities to enable continuous innovation and change. Successfully creating dynamic capabilities enables a company to challenge its competitors that ignore changes in its business environment and prioritise efficiency over innovation. (Teece, 2014)

Agarwal and Helfat (2009) argue that using developed dynamic capabilities repeatedly to create strategic renewal enables a company to succeed in renewals more effectively. Teece (2007) highlights that dynamic capabilities govern the change rate of routines and ordinary capabilities. Thus, good dynamic capabilities enable value-enhancing asset orchestration inside, between and amongst companies and other institutes among a company's business ecosystem (Teece, 2007).

Teece and colleagues (1997) argues that companies' competitive advantage comes from their managerial and organisational processes, their asset position and paths available for them. Innovative activity itself often feeds technological opportunities. Organisational structures linking basic research institutes to a company help recognise opportunities. As companies differ in their resources and assets, opportunities can be rather company specific. Incumbent companies often have organisational processes that cannot support new technologies even when there are similarities between the new and old. This enhances the failure of incumbent companies to introduce new products and services as the success would require radical organisational re-engineering. (Teece et al., 1997)

Jansen et al. (2009) say that social integration of management teams increases collaborative problem solving, which helps mobilisation and integration of capabilities in an organisation to create new combinations of exploratory and exploitative activities. They continue that cross-functional teams increase ambidextrous activities as they bring together different capabilities and knowledge sources (Eisenhardt & Martin, 2000). Also, social integration brings open discussion about paradoxical goals and demands to help overcome strategic contradictions. (Jansen et al., 2009)

Paradoxical strategic tensions can create anxiety and defensive decision-making actions. This can lead to managers remaining inert and becoming trapped with the comfort of the past. To overcome this "success syndrome", managers must work through the initial uncomfortable tensions. Lewis et al. (2014) suggest managers to embrace a "both and" vision to enable strategic agility to reach both short-term successes and long-term sustainability. This vision helps managers to create possibilities to solutions that embrace both sides of strategic tensions. It also helps managers to reconsider the use of constrained resources of a company. (Lewis et al., 2014)

Teece and colleagues (1997) suggest that to gain dynamic capabilities, managers must facilitate coordination, learning and reconfiguration. Teece (2007) says that the management's key function is to find new value-enhancing combinations inside a company and also between other companies and institutes. As many of the most valuable assets in a company are knowledge related, the coordination and integration of these assets create value that cannot be replicated in a market. Successful dynamic

capabilities require allocation, reallocation, combination and recombination of resources and assets. Managers must be able to identify the gaps in a company's capabilities and find complementarities or new assets to fill these gaps to provide superior value to customers. (Teece, 2007)

Dynamic capabilities require continuous creation, integration and commercialisation of innovations consistent with technological opportunities and customer demands (Teece, 2007). Managers must recognise developments and trends and react to respond to them fast enough. A company needs values and culture that enables a collective ability to react quickly by implementing a new business model or other changes to react to sensed trends. (Teece, 2014)

Binns and colleagues (2014) discuss the importance of the whole management's commitment to a transformational agenda and that strategic renewals succeed when also lower level managers are engaged to this agenda. They also argue that strategic renewal projects should get as much attention from the management as daily operations to make the renewal successful. Helfat and Martin (2015) highlight the effect of newly pointed managers who change routines and processes to redirect existing strategies.

Differences in dynamic capabilities among companies create differences in companies' performance under conditions of change. Strategic change is associated with managers' managerial cognition, human capital and social capital and differences in these abilities create companies to differ in their performance in strategic renewals. Managers' skills play a critical role for companies' renewal actions. Managers' ability to sense and seize opportunities affects the whole company's creativity and innovation skills. Entrepreneurial skills help managers to create markets and reconfigure resources. Managers' human capital as knowledge, skills, cognitive ability and other abilities help managers to sense opportunities and threats, seize opportunities and reconfigure resources, capabilities and organisational structures. When viewing managers' skills and capabilities, it is also important to view the managers as teams with complementary skills and abilities instead of individuals. (Helfat & Martin, 2015)

Teece (2007) says that maintaining dynamic capabilities require entrepreneurial management. Entrepreneurial managers constantly hone a company's evolutionary

and entrepreneurial fitness. This means sensing and understanding opportunities, starting new things and improving existing things to get them work better. Entrepreneurial management is more about sensing and seizing to find the next big opportunities than analysing and optimising. Entrepreneurial managers can sense and even shape the future, free a company from its past and keep a company ahead of competition by augmenting knowledge assets and protecting them with intellectual property rights, creating value-enhancing asset combinations and transforming organisational structures. Entrepreneurial managers are able to think without the constraints and benefits of existing routines and this way create novel solutions (Teece, 2014). For a company to succeed, it must have skills to all three capabilities: sensing, seizing and transforming. It is unlikely that an individual manager masters all three capabilities (Teece, 2014), which brings pressure for the CEO to gather all three capabilities to the top management team. (Teece, 2007)

2.2.2 Dynamic capabilities differing from ordinary capabilities

A capability refers to “the capacity to perform a particular activity in a reliable and at least minimally satisfactory manner” (Helfat & Winter, 2011, p. 1244). The activity has an objective that a specific purpose and intended outcome (Amit & Schoemaker, 1993). Dosi, Nelson and Winter (2000) say that capabilities fill the gap between intentions and intended outcomes. According to Helfat and Martin (2014) a capability enables reliable and repeated activity to perform an activity. To perform an activity in a minimally satisfactory manner means that the outcome must be recognizable as such (Helfat & Martin, 2014). The characteristics of a capability apply well to dynamic capabilities. Dynamic capabilities have an intended purpose and recognisable outcomes as such, supporting patterned behaviour and activity. (Helfat & Martin, 2014)

Dynamically competitive companies proactively shape the competition and marketplace instead of defending their own position through entrepreneurship, innovation and asset orchestration and business reconfiguration (Teece, 2007). A company's ordinary capabilities do not help to determine if the current operations are the correct path for the future even if they create competitive advantage at the moment. Ordinary

capabilities are insufficient to create sustainable competitive advantage as the business environment changes. To create organisational competitive advantage, a company needs to build and use dynamic capabilities. (Teece, 2014)

Operational efficiency and short-term competitive advantage can be gained from adopting best practices (Teece, 2007; Teece, 2014). Possessing required resources and competences at a certain moment of time creates competitive returns but lacking dynamic capabilities makes these returns only short-term due to changing business environment (Teece, 2007). But implementing these best practices and gaining superior operational efficiency are not dynamic capabilities (Teece, 2007; O'Reilly & Tushman, 2008). Best practices can be bought from consultants and through training (Bloom et al., 2013; Teece 2014). Also, the Internet has enabled best practise trends to spread faster than before (Teece, 2014). Because of this, best practices are not sustainable as they diffuse rather fast in companies that are open to global competition, having access to benchmarking data, same technologies and best practices training (Teece, 2014). Management consultants introduce the latest best practices to their clients creating organisational innovations to move from leading companies to their rivals as well as to other industries (Teece, 2014). Drnevich and Kriauciunas (2011) argue that because of the imitability of best practices, ordinary capabilities are not sufficient for a company's survival and growth.

Strong ordinary capabilities are strong in a company that uses the existing best practices using advanced equipment and employs skilled people relevant for their jobs. Strong and even differentiated ordinary capabilities enable a company to match its current operations to existing market needs and enable the company to have a competitive advantage but this lasts only until market conditions change. Ordinary capabilities lack the change management skills that are required for long-term success. If the competition is very weak, for example because of governmental barriers for competition, ordinary capabilities can be sufficient to gain also a more long-term competitive advantage. (Teece, 2014)

Not all managerial responses to threats and opportunities are necessarily dynamic capabilities (Teece, 2007). Winter (2003, p. 991) says that "*ad hoc* problem solving" is not necessarily even a capability. With ordinary capabilities, a company can per-

form successfully administrative, operational and governance-related functions that the company needs to accomplish its tasks. But ordinary capabilities are only enough for the time being. Dynamic capabilities involve higher-level activities in the company that create higher-level payoffs. This requires the management to reconfigure a company's resources to fit the rapidly changing business environment. (Teece, 2014)

According to Teece (2014, p. 331) the difference between ordinary and dynamic capabilities are: "Whereas ordinary capabilities are about doing things right, dynamic capabilities are about doing the right things, at the right time, based on new product and process development, unique managerial orchestration processes, a strong and change-oriented organizational culture, and a prescient assessment of the business environment and technological opportunities." In other words, Teece (2014) refers that ordinary capabilities enable technical fitness between the company and the existing business environment whereas dynamic capabilities enable the company to have evolutionary fitness through innovation and change as the business environment shifts.

Dynamic capabilities cannot be outsourced since the understanding and implementation of required processes and structures are company specific. Undergirding dynamic capabilities requires knowledge of the company itself and the ecosystem the company is part of. As Teece (2007, p. 1345) says, this is not easy: "However, understanding how to enhance performance of the enterprise through sensing future needs, making quality, timely, and unbiased investment decisions inside a well-designed business model, executing well on those decisions, effectuating productive combinations, promoting learning, reengineering systems that no longer work well, and implementing good governance remains enigmatic." (Teece, 2007)

To gain dynamic capabilities, the management has to go further than the company's financial statement and existing organisational fit between the market. It needs to find processes and capabilities to find latent customer needs and promising technological opportunities. When a company has dynamic capabilities, it has to ensure that its strategy and organisation are aligned with the anticipated changes in the business environment. It also has to change its ordinary capabilities and the routines and pro-

cesses that are under these ordinary capabilities. Sometimes this can be very simple but it can also require radical changes. (Teece, 2014)

2.2.3 Sensing and shaping opportunities

As the competitive environment is constantly changing in global competition, opportunities rise for new companies and incumbents. New opportunities change competition and put the incumbent companies' profit streams into a risk. Most of the time emerging market trajectories are difficult to recognise. Teece (2007, p. 1322) says that: "Sensing and shaping new opportunities is very much a scanning, creation, learning, and interpretive activity. Investment in research and related activities is usually a necessary complement to this activity." (Teece, 2007)

Before a company can evaluate and pursue opportunities, it has to recognise them (Grégoire et al., 2010). Sensing is not easy for incumbent companies' management. Managers are more sensitive to threats than opportunities and tend to overweight threats for the cost of sensing opportunities (O'Reilly & Tushman, 2008; Jackson & Dutton, 1988; Tripsas & Gavetti, 2000; Gilbert, 2005). Individual processes for opportunity recognition is important for companies' strategy, adaption, learning and renewal (Amit & Zott, 2007; Gavetti, 2005).

Grégoire and colleagues (2010) say that sensing is a cognitive process that requires necessary cognitive energy to encode and process different signals. Sensing opportunities is about pattern recognition and "connecting the dots" between changes in all parts of the business environment (Grégoire et al., 2010; Baron & Ensley, 2006; Hodgkinson & Healey, 2011). Individuals make sense of new information by comparing it to their existing knowledge, especially to the alignment of structural relationships. In sensing opportunity-level patterns managers compare resemblance of events and mental models of situations and contexts to make sense of new information and simultaneously identifies potential way to profit from these. When the external environment constantly changes, it is essential for managers to update their mental representations as well to remain alert to sensing (Hodgkinson & Healey, 2011). (Grégoire et al., 2010)

Grégoire and colleagues (2010) found that managers considered the alignment between how a technology works and the cause-effect principles explaining the benefits and advantages of the technology with what people in a market do and why is this and finally the cause-effect relationships for unsatisfied needs and problems in the market. They also found that noticing parallels between higher-order relationships was a critical step in this opportunity recognition process. Helfat and Martin (2015) refer managerial cognition to “knowledge structures” that consists of managers’ mental models and beliefs, mental processes and emotions. They say that managers have difficulties transferring knowledge between different contexts. Gavetti (2012) argues that some managers are able to make this transfer and these managers are more effective on sensing opportunities.

Helfat and Martin (2015) argue that managers with different roles, expertise and industry and company-specific knowledge differ in their “absorptive capacity” for different information and thus sense different opportunities. Teece (2007) says that the ability to recognise opportunities depends on the individual’s capabilities and extant knowledge about user needs. He says that this means interpreting available information from any form it appears and creatively creating a conjecture of the likely evolution of technology, customer needs and marketplace responses.

Managers’ social capital, both formal and informal relationships, helps managers to acquire resources and information that can help them sensing new opportunities (Adler & Kwon, 2002). Linking knowledge from different sources and networks can facilitate environmental scanning and opportunity recognition (Helfat & Martin, 2015). Hodgkinson and Healey (2011) say that social processes are effective to find trends in the business environment and judge possible opportunities and threats. This way managers’ social capital from network contacts inside and outside their own organisation can enhance ambidexterity. From managers’ networks, they can develop new competencies, come up with radical innovations or innovative solutions to problems in their own company. (Mom et al, 2009)

Opportunities arise from changes. Change can occur because of new knowledge or technology, changes in relevant actors in the economy or wide-ranging changes in the macro-economic situation. The change itself does not create opportunities but

changes enable opportunities through sensing. (Grégoire et al, 2010) Managerial attention to external change facilitates the speed and extent of strategic change. (Helfat & Martin, 2015)

Companies must constantly scan, search and explore local and distant technologies and markets to identify and shape opportunities. Local search means a company's own research and development whereas the distant search means exploring the whole ecosystem from customers to complementors. But investing to research, understanding customer needs and technological possibilities is not enough. Companies must understand latent demands, structural evolution of industries and markets and likely responses from suppliers and competitors. Sometimes this requires changing organisational routines, as companies can become prisoners of their own filtered worldviews. (Teece, 2007)

After identifying an opportunity, a company must figure out how to interpret changes that seizing this opportunity creates in the company. In other words, managers must create a business model for the new opportunity and assess how the stakeholders react to the changes. Competitors may have sensed the opportunity as well but they might have calibrated it differently. This means that their actions with their stakeholders can change the nature of the opportunity and how the competition unfolds. The shape of the competition is a result of co-evolution and complex interaction between all the business ecosystem participants. Because the future is uncertain, managers must make conjectures about the possible future. The conjectures can be updated as evidence emerges. When there is enough evidence for a new evolutionary path becoming apparent, managers must act fast to seize them. (Teece, 2007)

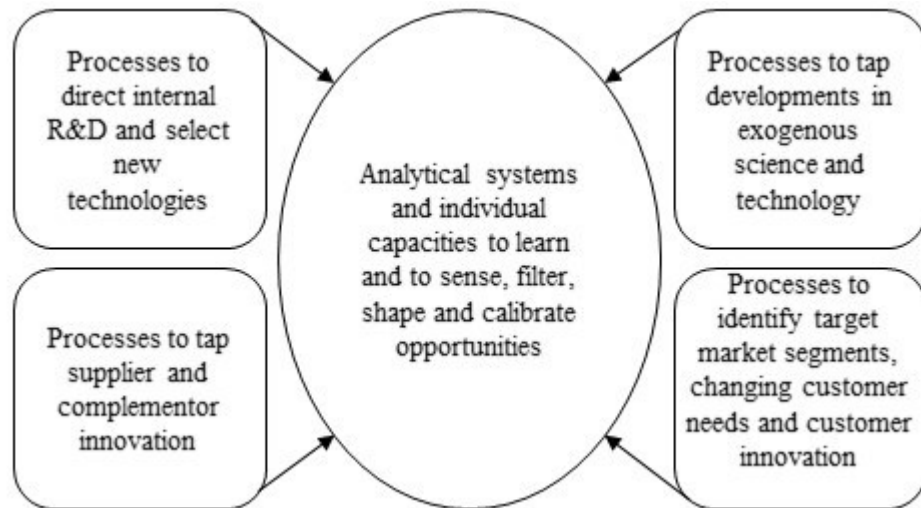


Figure 2: Teece's (2007) microfoundations for sensing.

The scanning, interpretative and creative processes can be embedded inside an organisation. This way the processes involve more than just few employees. The relevant information of these processes must be filtered and brought to the managers who can make sense of it and can make conjectures about the future competition. Analytical frameworks can facilitate sensing, as they can highlight the more important factors of opportunities and threats. (Teece, 2007)

2.2.4 Seizing promising opportunities

To successfully seize opportunities, companies must evaluate sensed opportunities and threats in a progressive and forward-looking way and commit to the opportunities in timely fashion. Management must unlock dysfunctional fixations with current strategies to mitigate bias, inertia and strategic persistence in order to commit to the opportunity. (Hodgkinson & Healey, 2011; Teece, 2007) After sensing a new opportunity, a company must create new products, processes and services to address it. This creates the need for investments to development and commercialisation activities. (Teece, 2007)

Companies must be flexible with their strategies when seizing new opportunities. Omission of seizing new opportunities often comes from over commitment of existing projects (Bazerman & Watkins, 2003). In order to successfully seize new opportunities, companies often have to readjust their strategic direction by shedding or

lessening their commitment to existing directions (Eisenhardt & Martin, 2000; Hodgkinson & Healey, 2011; Teece, 2007). According to Teece (2007), managers must acknowledge the interaction effect between decision-making biases and owning established assets. By choosing a strategy that sheds dying assets, a company frees itself from shackles of an asset base that can provide false feeling of security and hinder the company from renewal (Teece, 2007). O'Reilly and Tushman (2008) argue that seizing is about developing a consensus among the management teams of the strategic intent and aligning the business model and strategy to match this intent without letting path dependencies and false mind-sets create decision traps.

Uncertainty of the future makes strategizing difficult for companies. Especially before the dominant design in technological evolution has been confirmed, making strategic choices needs to be flexible. When the dominant design is confirmed, the investment to this choice must be made fast especially when network effects are present. In other words, to address opportunities a company must maintain and improve technological competencies and complementary assets and invest heavily to the most probable technologies and designs when the opportunity is ripe. (Teece, 2007)

Decisions on when, where and how much to invest are not enough to successfully seize opportunities. Managers must create or select a particular business model for the opportunity defining its commercialization strategy and investment priorities. The opportunity becoming a success is equally dependant on these organisational innovations than physical technologies themselves. According to Teece (2007), if the business model is wrong for new opportunities, no amount of good leadership and governance can make the opportunity becoming a success. (Teece, 2007)

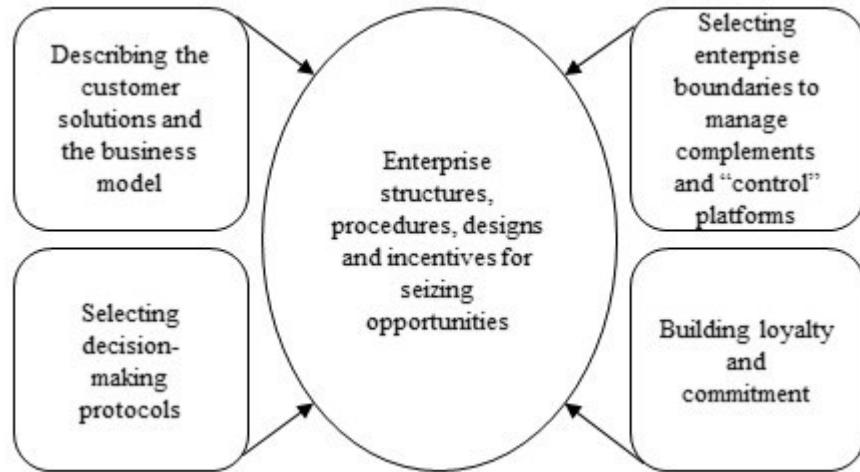


Figure 3: Teece's (2007) microfoundations for seizing.

Seizing opportunities create changes in companies that can cause fear of job losses and negative emotions towards the changes. People tend to overweight negative aspects of decisions and overreact to new risks. (Hodgkinson & Healey, 2011) Overcoming different constraints and barriers in seizing requires strong leadership (Teece, 2007; O'Reilly & Tushman, 2008). Managers with different backgrounds and expertise are likely to differ in their investments and other commitments in seizing. Managers' social capital can help provide the company with needed resources for seizing opportunities, such as financing and skilled personnel. Also position of centrality in organisational social network can help managers to obtain resources needed for seizing. (Helfat & Martin, 2015)

Companies can have reporting structures and other justification and approval processes that can hinder seizing opportunities. This slows down decision-making and creates compromises that often hinder seizing a sensed opportunity as radical changes often threatens some constituents. Because of this, several sensed business opportunities fail to be seized. In particular this seems to be difficult for incumbent companies that prefer incremental improvements to more radical innovations that can destroy existing competences. They prefer relying on path dependent routines, assets and strategies that are made for coping with existing customer needs to radical changes. Also, previous success from existing processes and incentives hinder seizing to new opportunities. (Teece, 2007)

Anti-cannibalisation is a hindering factor that prevents incumbent companies to seize radical innovations. This means that incumbent companies may limit their new innovation investments to a narrow range that are close to their existing asset base. Because this narrows the search focus of a company, it can create difficulties for the company to see potential radical innovations. Also, incumbent companies tend to frame problems consistent with their current knowledge base, assets, problem-solving heuristics and current business models. This kind of action from managers prevents companies seizing new opportunities even if they have recognised them. So, existing assets of a company create two constraints to the managers, cognitive limitations and framing bias. (Teece, 2007)

2.2.5 Transforming a company with asset reconfiguration

According to Teece and colleagues (1997), a company's ability to reconfigure and transform is a learned skill that becomes easier when practised more often. When transformation becomes easier, it is also easier to stay ahead of the competition as the successful transformation becomes faster. The ability to continuously survey the markets and technologies and willingness to adopt best practises is key to transformation. One way of doing this is benchmarking. (Teece et al., 1997)

Companies must integrate new activities and assets to existing ones to be able to create value for both new and existing customers (Jansen et al., 2009; Teece, 2007). More precisely this means integrating new product offerings, systems, routines and structures to fit with the old ones. The transformation needs to be at least semi-continuous to keep the company ahead of the competition and gain superior profitability. Also, the periodic change is necessary to minimize internal conflicts and maximize complementarities and productive exchange in the company. (Teece, 2007) Continuous transformation also softens rigidities that develop over time (Teece, 2014).

Teece (2007) argues that companies must continuously achieve a "strategic fit". This means co-specialisation inside the company between different parts from assets and processes to strategy and company structures and this fitting with the changing environment (Teece, 2007). A company must also find a fit between its own internal pro-

cesses, partners, customers and the business environment. In other words, a company must keep its assets in strategic alignment with its continuously changing ecosystem. (Teece, 2014) To achieve this, the company needs to reallocate its resources, especially away from the declining and mature businesses to new growth opportunities (O'Reilly & Tushman, 2008).

Managers must continuously align their business with the environment (O'Reilly & Tushman, 2008). A key factor to understand the change in the business environment is learning. Through learning, companies can understand what their customers want, what new opportunities new technology can offer, what parts of the current business model are and are not working and finally whether the existing strategy is working and is it the correct path for the company. With this type of learning, a company can tune its ordinary capabilities and synchronise its processes and models to match the business environment. (Teece, 2014)

As a company grows, its assets and resources increase simultaneously. Successful profitable growth causes a company to evolve in a path-dependent way. For a company to keep growing profitably, it has to reconfigure its assets and resources as the environment changes. This reconfiguration maintains the company's evolutionary fitness and helps the company to get rid of unfavourable path dependencies. Reconfigurations often require changes in a company's routines. When the innovation is incremental, changes in routines and structures can be adapted in gradual or semi-continuous steps. In the case of radical innovations, the changes are more dramatic and create a need to change routines and create whole new organisational structures. (Teece, 2007)

Transforming can create the need to redeploy a company's assets from one organisational location to another (Teece, 2007). Helfat and Peteraf (2003) say that this type of capability redeployment can be either sharing of capabilities between the old and new or a geographic transfer of a capability between different markets.

As a company changes its assets, resources and ordinary capabilities to gain strategic fit with the changing business environment, it must assess how these changes affect its business model. Especially when the changes are more radical, the current business model must be redesigned to create maximal value. (Teece, 2007) This needs

considerations of how to deploy resources and assets and how the rent streams get renewed and extended (Teece, 2014).

The dynamic capabilities framework addresses a company's innovation and co-creation operations, resource sources and resource deployment to its strategy and organisational structure and processes. This means determining resource allocation targets and facilitating resource and asset transformation to be in line with the existing strategy. In other words, this means that a company must allocate its resources so that they bring their maximal value for the company. This means that owning resources can bring value for a company but to gain sustainable success, a company must reconfigure and redeploy its assets as the environment changes. (Teece, 2014)

Managers' social capital plays an important role also in transforming. The influence and organisational power from social capital can facilitate changes in personnel, transformation of organisational structure and reconfiguration of physical assets. Managers' human capital like expertise and experience affect their decisions and implementation in reconfiguring organisational resources. Because of this, different managers differ in their transforming activities. (Helfat & Martin, 2015)

There are three organisational processes in transforming that managers must be able to manage. First process is coordination and integration, which involves combining various resources to development of new offerings. Second process is learning, which is an outcome of experimentation in seizing phase and creating more effective tasks. Third process is reconfiguration, which involves combining the new and old resources. Many companies have routines and processes for downsizing the company but they lack the opposite. To perform a productive transformation, managers need to have or create routines and entrepreneurial actions to introduce new activities alongside current business operations. (Teece, 2014)

Top management has a crucial role in transformation (Helfat & Martin, 2015; Teece, 2007). The initiative to invest in new assets and capabilities must come from the top management to enable actual strategic change (Maritan, 2005). Hodgkinson and Healey (2011: 1510) say that the management's role is to create "a psychologically secure emotional climate". This supports the identity transition during the strategic transformation (Hodgkinson & Healey, 2011).

The ability to identify, develop and utilize specialized and co-specialized assets in combination is important for managers. They can create special value with asset combinations that are not possible for competitors as every company has unique assets. These assets can be as simple as knowledge. As learning is a key ability in dynamic capabilities, the combination of knowledge within a company and between the company and external organisations is important. (Teece, 2007) The ownership of specialised resources is not enough, they must be properly managed and the coordination of the management is a crucial factor to succeed in transformation (Teece, 2014).

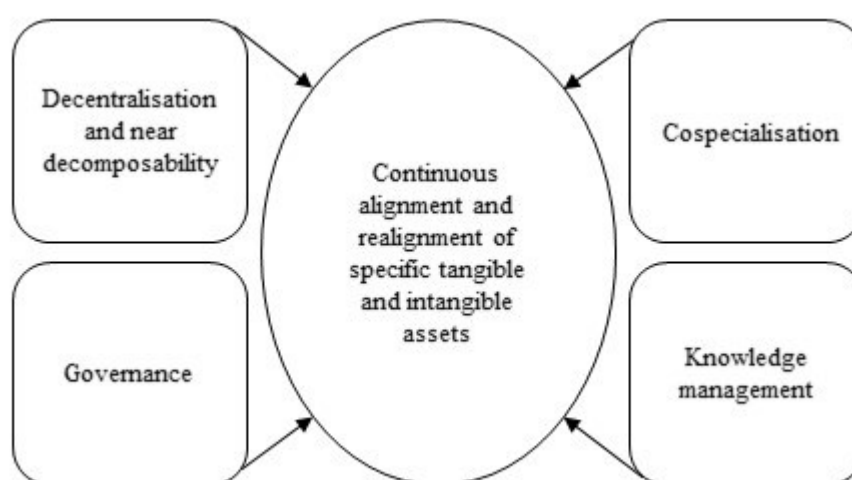


Figure 4: Teece's (2007) microfoundations for transforming.

Top management's leadership skills determine how fast and well a company's resources can be aligned consistent with the company's strategy and changes in its business environment (Teece, 2014). Helfat and Peteraf (2015) build on this saying that it is critical to persuade others to take a different course of action and adopt new mind-sets.

Day-to-day tasks tend to take away time from the managers to focus on long-run strategic issues. Especially during transformation, decentralisation along product and market lines with independent profit centres has shown improvements to the performance. This way of giving independent decision responsibility to different parts of the company, the management has got more time to concentrate on the strategic issues of the company. (Teece, 2007)

Transformation and changes are always costly. Thus, companies must create processes to minimize low pay-off change. Managers' abilities to recognise the essential changes come from their abilities to scan the environment, evaluate markets and competitors and quickly implement reconfiguration and transformation to this way see the essential changes that are needed to stay ahead of competition. (Teece, 1997)

When a company has found a strategic fit with the ecosystem, this can create inertia from the strategies, structures, people and cultures that have created the success. This means that a company uses the same routines and strategies as before because the managers trust the same way of doing business will bring success again in the future. (O'Reilly & Tushman, 2008) So instead of reacting to changes in the business environment, a company refuses to change and continues with its existing way of business even the environment requires changes. Tushman and O'Reilly (1996) refer to this as "success syndrome". Audia and colleagues (2000) call this "the paradox of success". Even though, a company might change its strategic direction to react to environmental changes, the managers are not willing to let go of unnecessary resources, but keep them along even after the transformation. This can be called as "letting go syndrome". Huovinen's (2016) study about Finnish SMEs found out that these kinds of paradoxical phenomenon are common for Finnish companies in the case of change.

2.3 SMEs' environmental adaption differing from large companies

Löfving and colleagues (2014) say that SMEs' strategy process is very different compared to large companies and formal strategy formulation is rare. They continue that reasons for this are lack of time, resources and their flexibility, experience and knowledge of the CEO and informal decision-making. Nada and colleagues (2012) point out that SMEs have a strategic advantage to large companies as their small size can make them flexible to quickly react to market shifts. Strategic agility enables companies to flexibly respond to changes in their environment. Achieving strategic agility requires formal strategic planning to create competitive advantage and the foundation for core competencies but simultaneously fast strategic responses to dynamic competitive landscape. (Lewis et al., 2014)

Globalisation and technological changes develop in such a pace that no company can avoid dramatic shifts in its business environment (Agarwal & Helfat, 2009). Often the most dramatic changes come from outside the core market making challenges for an industry (Binns et al., 2014). Major changes in business environments pose difficulties because of required changes (Agarwal & Helfat, 2009). Because of their small asset size, SMEs are more vulnerable and open to the changing environment than large companies (Bharati & Chaudhury, 2009). Globalisation with rapid technological developments have changed and increased the competition, which creates challenges especially for SMEs (Löfving et al., 2014).

Digitalisation is creating fundamental changes to the way of conducting business. These changes make alterations to every company in the ways of creating shareholder value. (Chang et al., 2003) The complex business environment with globalisation and internationalisation of markets has created need for greater efficiency for companies. Especially manufacturing SMEs face the pressure to compete globally. Kumari and colleagues (2015) say that manufacturing SMEs are affected from global recession and to survive they need to produce high quality products with minimal costs. To succeed in this, these companies must lower their operating costs, increase productivity and respond to increasing customer demands. Even though these create challenges for SMEs, it simultaneously creates opportunities for them to internationalise their business. (Raymond et al., 2005)

Digital systems create new possibilities for value creation by structuring transactions in novel ways. These new ways of doing business in the digital world opens new possibilities for innovation that might require shifts in strategic thinking towards more dynamic, adaptive, integrative and entrepreneurial strategies. (Amit & Zott, 2001) SMEs can grow two to three times faster when they embrace digitalisation. Still SMEs' innovation capability is the key factor for their success according to Janaratne (2014). Changing environment creates challenges to this innovation capability that requires more and more digital thinking. Digital technologies' development is reducing product lifecycles and creates pressure for companies to manage them more effectively. (Janaratne, 2014)

Innovation management has become a key factor to cope with environmental changes and sustaining a competitive advantage within an industry. Companies must anticipate emerging changes in their markets and rapidly respond to these needs. Nada and colleagues (2012) suggest that SMEs must establish an innovation strategy and monitor the innovation process to cope with the increasing pace of changes. (Nada et al., 2012) Kriz and colleagues (2014) say that competitive advantage has become more temporary as the environment changes so fast and this creates for companies a continuous need to adapt to these environmental changes. Thai and Ching (2013) say that SMEs must learn quickly through experimentation, flexibly change strategies and human resources and solve problems creatively within limits of their own capabilities to cope with the constantly changing environment and sustain competitive advantage.

Earlier innovation has been product and service oriented but lately it has become also about business model innovations (Antony, 2012). Lindgren (2012) sees that business model innovation is especially difficult for SMEs as they do not see the potential in them and are not often capable to capitalise them. Even though these difficulties exist, Lindgren (2012) sees that SMEs have lately become more aware of the importance of business model innovation and they have started to involve their partner networks to these innovations.

Modern digital solutions can enhance SMEs' business opportunities. The issue that SMEs face with the newest technology is that the best systems are created for large companies and SMEs do not have enough financial possibilities to invest in these systems. Also, SMEs cannot invest much into studying constantly developing systems and selecting the best ones for their business. Paradoxically, implementing and using the latest technology is the key to competitiveness. (Herdon et al., 2012)

SMEs face capability issues with digital systems that create challenges for them (Herdon et al., 2012). Arendt (2008) says that the reason why SMEs are lagging behind large companies in digital issues is because of lack of proper knowledge, education and skilled managers and employees. Arendt (2008) argues that the managers of SMEs should invest in their employees' training and education in required IT-skills to help the transformation into digital solutions in their business. SMEs avoid seizing

digital opportunities because of the barrier that insufficient knowledge brings and taking risks with them (Arendt, 2008). Huovinen (2016) says that Finnish manufacturing SMEs do not have enough digital capabilities to succeed at the moment. According to Nada and colleagues (2012), human resources are SMEs' key resource but SMEs face challenges acquiring talented and capable employees as these employees see large companies as better prospects for their career development.

As companies grow and create structures and systems to manage increasingly complex work, the changes become more difficult and costly and require more time. This can create structural inertia, which means resistance to changes rooted in the size, complexity and inter-dependence in a company's systems, processes, structures and procedures. When a company becomes older and gains success, there can arise cultural inertia. This means that in the organisation grows norms how things should be done and has always been done in a certain way. These become later difficult to change. (Simanis & Hart, 2009) Tushman and O'Reilly (1996) say that discontinuous changes create issues for successful companies as their managers must destroy the alignment that has made the company successful and reconstruct a new organisation that is better suited for new competition and technology. Sometimes this can mean cannibalising the company's own business. (Tushman & O'Reilly, 1996) Huovinen (2016) sees that Finnish manufacturing SMEs face a "success syndrome". With this he means that even though the business environment changes, these companies do not want to change and prefer doing business as before as the old ways have brought success for the companies in the past.

2.4 Synthesis of the literature review

According to Teece (2014) a company's strategy, capabilities and the business environment co-evolve. According to him a good strategy shows how a certain company will use and exploit its scarce resources to support changing market needs and overtake its competitors. The business environment is constantly changing, which creates challenges to managers to sense and understand where the business is heading. As Ward and colleagues (1995) and Raymond and colleagues (2005) say, changing business environment creates opportunities but it also creates threats. Bharati and Chaudbry (2009) argue that SMEs are more vulnerable and open to environmental

threats than large companies because of their smaller asset sizes. Löfving and colleagues (2014) say that globalisation and rapid technological developments have lately created challenges especially for SMEs by changing and increasing the competition.

Companies face opposite demands to be competitive at the moment but also to remain competitive in the future. This creates trade-offs to companies that can be managed to create long-term competitive advantage. (Gibson & Birkinshaw, 2004) A key concept to sustain this long-term competitiveness and fitting existing assets to future needs is ambidexterity. According to Teece (2004) ambidexterity means a company simultaneously performing incompatible activities to improve existing products and services to current customers and markets and creating new products and services to acquire new customers and markets. This requires constant adapting to changing environment by exploiting existing assets and exploring new technologies and markets. To be successful with this, companies must configure and reconfigure their resources to capture existing and new opportunities. (O'Reilly & Tushman, 2008) March (1991) says that exploitation is about efficiency, control, certainty and variance reduction whereas exploration is about search, discovery, autonomy and innovation. Ambidexterity is about doing both of these two simultaneously (O'Reilly & Tushman, 2008).

Managers must work with a dual agenda by supporting explorative activities in side by exploitative activities. Gibson and Birkinshaw (2004) say that managers' support and leadership skills are critical for ambidexterity. This highlights the importance of capable managers who must occasionally work inconsistently related to a company's strategy to enable this. (Tushman et al., 2011) Exploratory activities require sufficient resource allocation as finances, human resources and managers' own time from the senior management (Tushman et al., 2011; Smith, 2014). Daily operations hinder managers' strategic management as they tend to take away time from long-term strategic issues (Teece, 2007). Top management's role in transformation is also important (Helfat & Martin, 2015; Teece, 2007). The decision to invest in new resources must come from the top management (Maritan, 2005). The managers must create a secure emotional climate inside the organisation to support identity transition during the strategic transformation (Hodgkinson & Healey, 2011).

SMEs' managers have a significant advantage against large companies' managers as they participate more closely to the company's day-to-day operations than the managers in large companies. This way as they are in the front line of sensing new customer needs and opportunities, they are also implementing the strategies and exploratory activities instead of giving the implementation to middle managers. SMEs' managers are also closer to a company's existing competencies and thus are more aware about how and when to exploit them. Similarly, the SMEs' managers are closer with a company's customers and this way gain more information about changing trends and changes in the environment enabling them to discover, evaluate and respond more directly to new market opportunities. (Lubatkin et al., 2006)

SMEs that proactively respond to environmental changes by seeking revolutionary innovations are more likely to create competitive advantage. These companies can get positive performance outcomes as they discover new competencies that shape the competition or expand their customer base into new markets. The issue that comes for SMEs with these activities is that benefits of exploration activities are difficult to estimate beforehand and the investments can take many years to pay back if at all. These risks can hinder SMEs' exploration activities, as they do not have necessarily required resources to sustain exploration activities for longer periods of time. Too much focusing on exploration makes SMEs vulnerable to efficiency-minded larger companies. In contrast, focusing on exploitation creates more predictable returns but without exploration these companies can become obsolete as the environment and market demands change over time. (Lubatkin et al., 2006)

Companies' managers must be able to unlock fixations with existing strategies to mitigate bias, inertia and strategic persistence to fully commit to new opportunities. (Hodgkinson & Healey, 2011; Teece, 2007) Companies must be flexible with their strategies when seizing new opportunities (Bazerman & Watkins, 2003) to be able to readjust their strategic direction by loosening their commitment to existing directions (Eisenhardt & Martin, 2000; Hodgkinson & Healey, 2011; Teece, 2007). Nada and colleagues (2012) argue that SMEs have a strategic advantage to their larger competitors as their small size enables them to flexibly change strategic directions to adapt to the environment. Löfving and colleagues (2014) say that SMEs' strategy process differs from large companies and in SMEs actual strategy formulation is rare.

SMEs lack financial possibilities to invest in the best digital systems that are created for large companies. SMEs' managers also lack time to constantly follow technological developments in these systems. (Herdon et al., 2012) Modern digital manufacturing technologies and systems have created a need for better productivity and efficiency for manufacturing companies to stay competitive (Raymond et al., 2005). Also, digital systems have changed the way companies create value for their customers (Amit & Zott, 2001). Because of these digital changes, companies need more digital thinking in their innovation capabilities (Janaratne, 2014). Herdon and colleagues (2012), Arendt (2008) and Huovinen (2016) argue that SMEs do not have enough digital capabilities to cope with these digital changes in their business environments. According to them, this is the reason why SMEs are lagging behind their large competitors in digitalisation related issues.

Dynamic capabilities are a framework to enable a company to be ambidextrous. As the environment changes, possessing unique assets does not give a company sustainable competitive advantage. For long-term sustainable advantage companies need dynamic capabilities to continuously create, extend, upgrade and protect a company's unique asset base. Dynamic capabilities can be divided into sensing opportunities, seizing these sensed opportunities and transforming a company by reconfiguring its tangible and intangible assets. (Teece, 2014)

Thai and Ching (2013) say that SMEs must learn quickly through experimentation, flexibly change strategies and human resources and solve problems creatively within limits of their own capabilities to cope with the constantly changing environment and sustain competitive advantage. To explore future opportunities, companies need to make experiments as strategic initiatives (Binns et al., 2014; Martin, 2011; Lubatkin et al., 2006). This is easy to perform also for SMEs as smaller experiments do not necessarily require massive financial investments (Lubatkin et al., 2006). Tushman and O'Reilly (1996) say that the most successful companies proactively initiate innovations that create changes to the markets instead of only reacting to sensed changes.

Sawhney and colleagues (2006) argue that many companies see innovation too narrowly, as they see it only as new things but according to them innovation is about

new ways of creating value. Antony (2012) says that one way to create new value is through new business models. Lindgren (2012) argues that business model innovations are difficult for SMEs as they have issues seeing the potential in them and cannot capitalise new business models.

Companies tend to create inertia from the strategies, people and cultures that have created the success. Because of this, companies tend to use the same strategies and routines that have brought them success before. (O'Reilly & Tushman, 2008) Huovinen (2016) argues that Finnish manufacturing SMEs have this type of “success syndrome”, which makes them resistant to change their strategies, routines and capabilities. According to Tushman and O'Reilly (1996) the ability to reconstruct the organisation to better suit the changing competition and technology is crucial for strategic renewal even though this would mean destroying the alignment that brought the company success to take it where it is at the moment.

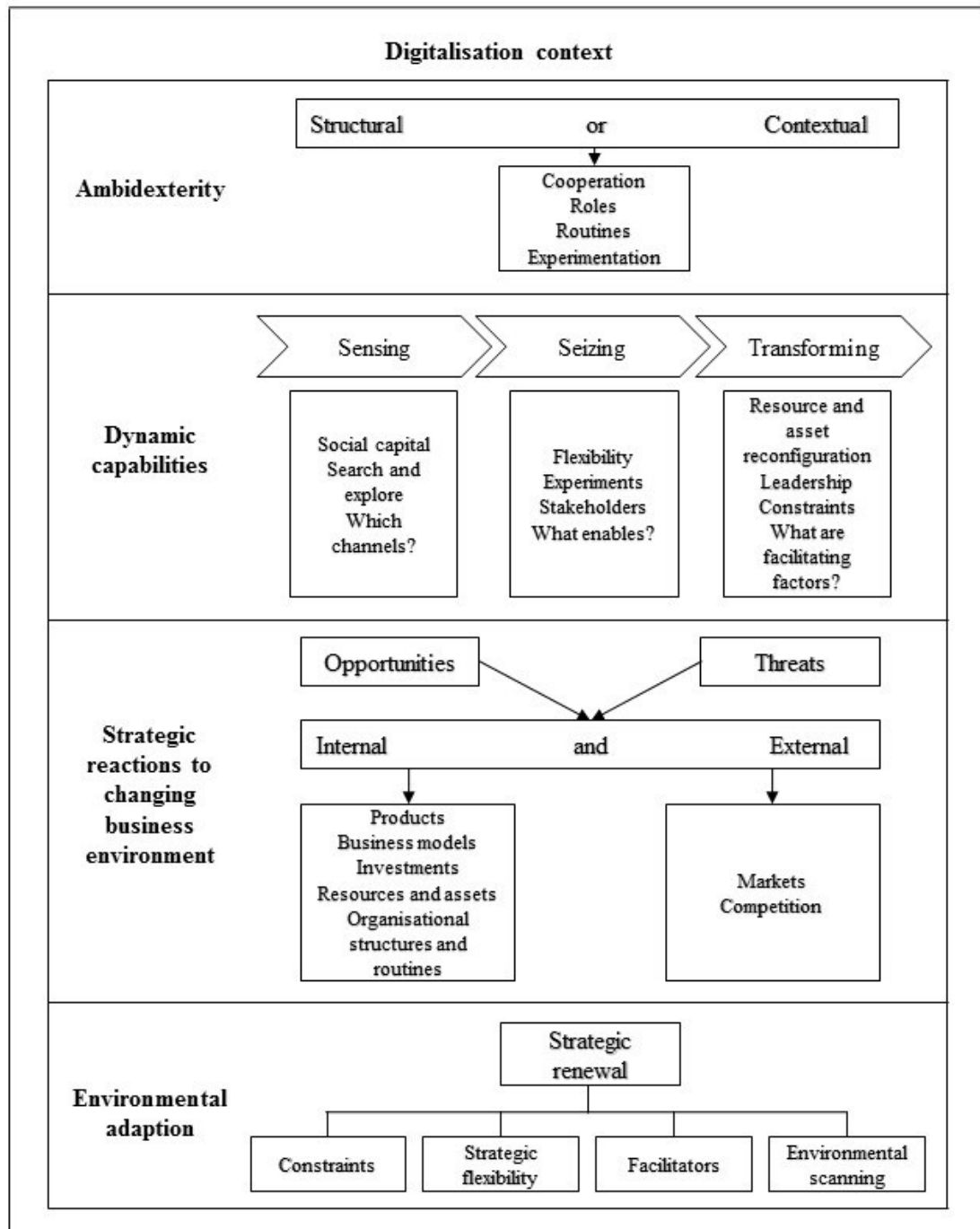


Figure 5: A framework of the literature review.

Figure 5 above shows a framework of the literature review. This framework will be used to compare the findings of this thesis to the literature review in chapter 5.1. As the existing literature mainly focuses on large companies, this thesis tries to find out how SMEs differ in their strategic renewal compared to these large companies by focusing on the issues on this framework using digitalisation context.

3. RESEARCH METHODOLOGY

3.1 Research design and data analysis

This thesis was conducted as a qualitative research. Merriam (2009:14) says that qualitative research's concern is to understand the phenomenon from the participants' perspective instead of researcher's perspective. Merriam (2009:15) also says a characteristic for a qualitative research is the researcher being the instrument of collecting and analysing the data. This is seen as an advantage as the researcher can be immediately responsive and adaptive in collecting and analysing to gain the best understanding from the participants' point of view. Qualitative research suits this thesis well as the author has collected and analysed the data. Qualitative research suits this thesis also as the sample of the companies is non-random (Merriam, 2009:18).

The interview approach was selected to be inductive. In inductive research the theory is built from the analysed research data instead of making hypotheses. In qualitative research, inductive approach is recommended and thus suitable for this thesis. Inductive research is also suitable for a research where the prior knowledge of the subject is limited, which also favours this approach for this thesis. (Saunders et al., 2007: 118-119)

The analysis of the interview data followed the methodology of Gioia, Corley and Hamilton (2013). This methodology highlights the reasoning behind peoples' actions and how they experience their actions. According to Gioia and colleagues (2013), to explain how things are done and the processes behind them, qualitative interviews must be done to provide answers. The methodology aims that conclusions of the underlying evidence from the interviews are presented and reported.

The methodology has three parts. The first part is creating first-order codes with informant terms from the interview data. As the analysis progresses, the researcher begins to see similarities and differences in the large number of the first order codes. By creating groups of the similar codes, the methodology creates first-order con-

cepts. The methodology continues by developing these first-order concepts into second-order themes that can describe and explain the phenomena that is researched. Finally, these second order themes are developed into aggregate dimensions and a data structure is made to visibly show the reasoning behind the analysis of the analysed interview data. (Gioia et al., 2013)

The data was first analysed by analysing each interview separately and creating first-order codes. According to Eisenhardt (1989), this gives the opportunity to identify unique patterns. These codes were then analysed to find similarities and differences in different categories resulting to first-order concepts. The first-order codes that found support from other interviews were only selected to the first-order concepts. The first-order concepts were developed into ten second-order themes. From the ten second-order themes, it was possible to draw conclusions to the research question and research objectives and develop the second-order themes into four aggregate dimensions. The resulted data structure can be seen in appendix one. The data structure provides a graphic representation of how the raw data from the interviews resulted into the findings. According to Tracy (2010), this is a key component to demonstrate rigor in qualitative research.

3.2 Data collection

This thesis was conducted as qualitative study, where twenty-five top management representatives were interviewed from twenty-three companies. Eighteen of the representatives were titled as “CEO”, three “Production Manager”, three “Sales Manager” and one “IT-Manager”. The aim was to interview each company’s CEO to gain especially strategic viewpoints towards adaptation to changing business environments.

The interviewed companies were manufacturing or technology SMEs in different parts of Finland that operate in industrial industries. All interviewed companies were Tekes’, The Finnish Funding Agency for Innovation, client companies and were selected based on this criterion. The annual revenues of these companies varied between three and twenty-six million euros and employee counts were from ten to hundred and twenty-four employees in 2016. Thirty-one companies were originally ap-

proached and the selected twenty-three companies agreed to give interviews to this thesis. All interviewed companies were granted a copy of this thesis in exchange for their efforts.

The interviews were carried out in two-month period between April and May in 2017. First, one company was interviewed with the initial question list to get a feeling of how the companies actually see the issues of this thesis and how well the question list worked for it. After the first interview, the question list was slightly adjusted to fit even better the rest of the interviews. Twenty-two interviews were made face-to-face in the representatives' company facilities and one interview was conducted via telephone. The interviews were conducted in Finnish and their length ranged from thirty-seven minutes to eighty-one minutes. All interviews were recorded and transcribed resulting twenty-one hours and fifty-four minutes of interview recordings and 206 pages of interview transcripts.

The interview questions were prepared in advance and the first question list was used with the first interview after which the question list was adjusted to its final form. The interviews followed a semi-structured manner with pre-determined topics that were followed by context-specific questions. The interviews topics concerned four topics: (1) how the interviewees see digitalisation affecting them and how they had reacted to this, (2) how the company's strategy process is like and how environmental changes are taken into account, (3) how the company performed strategic renewal because of environmental changes and (4) what the company would ideally want to do to grow and renew themselves and why they cannot do it.

Using the semi-structured manner in the interviews were meant to get the interviewees to first explore their own minds about the topics and start a discussion about the larger topic. The more context specific questions were then used to find out more specific issues that the literature review highlights and get the interviewees to think about these issues. For example, in sensing the environment for new ideas, no interviewee responded initially social capital being a method for sensing but when they were asked about this issue, ten interviewees said this had happened, ten saw potential in it and only three did not see it important. Generally, the interview principle

was to keep the conclusions of the existing literature minimal to be able to discover new insights.

3.3 Validity and reliability

Yin (1994) suggests that several sources of evidence should be used to increase the validity of a research. In this thesis, there were used twenty-three different companies to increase the validity from this point of view. Eisenhardt (1989) says that researchers should search evidence for why something is happening. To overcome this issue, the data from the interviews were used to create understanding why the findings were reached. This reasoning can be seen in figure six and in more detail in the data structure in appendix one. Eisenhardt (1989) says that to improve the validity, a specified population should be selected. A specified selection of companies and their managers were selected for this thesis. This selection is more described in chapter 3.2. Eisenhardt (1989) also suggests that the research should be compared to existing literature about the topic. Because of this, chapter two has been made to gather existing knowledge of the topic and in chapter 2.5. the existing literature was synthesised to create a comparison for the findings. In chapter 5.1., the findings of this thesis are compared to the existing literature.

To increase the reliability of a research, Yin (1994) developing a database of the interviews. All interviews were recorded and later transcribed. These transcriptions were collected to Atlas.TI software that is used for qualitative researches. Atlas.TI was then used for coding and code databases were made. To increase the reliability of the thesis, the number of interviewed companies was selected to be over twenty to get the findings from the interview data to begin repeating and thus creating reliable findings. In analysing the interviews, only the first-order codes that got support from other interviews were selected to first-order concepts in order to increase the reliability of the analysis and the findings.

4. FINDINGS

4.1 Exploiting stakeholders to sense opportunities and changes

The interview data indicates that Finnish manufacturing SMEs utilise their stakeholders to sense the environment and anticipate changes in their markets. The findings from the interview data also show that the companies utilise their stakeholders to adapt to the changing business environment in broader sense. This can be seen from cooperation with radical innovations with the interviewed companies and their partner universities and companies. Exploiting stakeholders to sense opportunities and changes results from two second-order themes called *Contextual ambidexterity utilising stakeholders' help* and *Environmental sensing from multiple channels*.

Contextual ambidexterity utilising stakeholders refers to the finding that those interviewed companies that could be identified to be ambidextrous in its true meaning were mainly contextually ambidextrous. The interviewed companies do cooperation with different stakeholders to perform their explorative actions. The most important stakeholders are partner companies as suppliers and customers and partner universities. The companies make experiments to test their sensed ideas before fully seizing them and they use also their stakeholders with these tests in addition to internal experiments. Companies had made internally resource changes and new organisational structures to become more ambidextrous.

Table 1: *Contextual ambidexterity with stakeholders' help.*

Evidence for <i>Contextual ambidexterity with stakeholders' help</i>
<ul style="list-style-type: none">• Companies use contextual ambidexterity to enable exploration activities.• Cooperation with sensing and seizing is made with universities, partner companies as customers and suppliers and research institutes.• Companies make experiments to test promising ideas both internally and ex-

ternally with partners.

- Companies have made resource changes to become more ambidextrous.
- New organisational structures have been made in the companies to increase exploration activities.

Environmental sensing from multiple channels means that the interviewed companies use several channels to scan the environment to anticipate changes that affect them and find new ideas and opportunities for radical innovations. To sense possible changes in the business environment, companies reported they do environmental scanning by discussing with different stakeholders and follow competitors' actions. In addition to this, most companies visited own industry's fairs and many also suppliers' or customers' fairs to sense the environment for changes and opportunities. Many CEOs mentioned that nowadays it is possible to find new opportunities by browsing the Internet and this way proactively search for new ideas to develop radical innovations. Finally, environmental sensing from multiple channels refers to the finding that social capital was seen as a very important source for new ideas, which highlights the importance of a large stakeholder network.

Table 2: Environmental sensing from multiple channels.

Evidence for <i>Environmental sensing from multiple channels</i>
<ul style="list-style-type: none"> • Companies scan the environment by discussing with stakeholders and following competitors to notice environmental changes. • Companies sense ideas and changes by visiting own and stakeholders' industry fairs and following industry media and news. • Companies proactively seek new ideas and opportunities from the Internet. • Social capital was recognised as a potential channel for new ideas.

4.1.1 Contextual ambidexterity utilising stakeholders' help

From the interviewed companies only two thirds were identified to be ambidextrous in its actual meaning. The majority of these companies were ambidextrous in contex-

tual way. One CEO said: *“As we are an SME, we do not have anyone like this purely searching for radical innovations. Of course, when we do research and development, we try to choose there people who are open-minded and not straight ahead shooting down new ideas. But we do not have special resources for just that.”* Another respondent said: *“It is in our company’s culture that you can develop new ideas and things and test them. Then there needs to be someone who is capable of doing both things as a resource who looks for both and not just radical new things.”*

Multiple interviewees saw that the office staff, especially the management team, was responsible for thinking radical innovations as part of their job tasks. One respondent said: *“The higher you are in the organisation, the more you need to think about these things. I would say it is more in the office staff side. From the production, you cannot wait to get very radical ideas or if they are they are not usually implementable in that form. So, it is more here on the office where we try to do this kind of development work and then give the responsibilities forwards to investigate and analyse and give information back to them to go forward.”*

One CEO said that they had structural ambidexterity earlier but they had changed it to contextual ambidexterity. As the company had grown, they needed more resources to the production and the employees had been transferred there to enable growth. The CEO said: *“The persons are now here inside and might do these development things when they have more time but then when it is more of a hurry they do the same things eyes closed than everyone else. That is why it goes so that when there comes a bad period it is really bad because nobody has had time to develop anything when business is going well and fast. And then when we are in the bottom of the bad period, we wake up that we should develop something and then start to come up again.”*

Nearly every interviewed company mentioned that they do cooperation with universities, research institutes or other companies in their explorative work. One CEO said that it is important to have cooperation to get external opinions: *“It is good that we get outside eyes and a different perspective opinion as we think that our project has went so well. Because we see it only from our perspective and through our own lens.”*

One interviewee said that cooperation with others bring new knowledge for exploration: *“For example the development thing that we had, there I was involved in a project that was facilitated from the university of applied sciences and there were also many larger companies involved. There we got a lot of good knowledge to the technologies and knowhow. So being involved in different development projects gives us new knowledge.”* Another CEO said that cooperation gives a broader view for exploratory work: *“Then we do some cooperation with some educational institutes... We try to have these contacts and channels that can then bring us this kind of broader view.”* From those companies who said they do cooperation with other companies, many said they do cooperation with their suppliers. One respondent said: *“We do sometimes development projects with our suppliers when we need perspective from the material suppliers side to what is possible from their side.”*

Nearly every interviewed company mentioned they make small experiments to test their ideas and see if there is an opportunity behind the idea. One CEO said: *“This is also a kind of basic principle for us. When there comes an idea, we try it and see if it works or has any good reason to take forward. We make a feasibility test for them and then make a decision if we will take the opportunity forward.”* Another respondent said: *“Yes, we try to do this if it just is not too expensive and this way check if there is something there. So that it is not a big project but so that we can see if there is an opportunity and should we then seize it with more resources or just leave it.”*

Some of the interviewees said that they make these experiments with their customers to pilot the idea in a broader set. One respondent said: *“And one common thing for us is to make experiments with our customers with new concepts and also new products. But we look that these are smaller projects where we experiment.”* Another CEO mentioned: *“For any larger partner things, we try to pilot and test our ideas before further developing them. If they do not look smart, then we do not develop them further.”*

One respondent said that they sense ideas from customers and make small experiments as part of the sales and marketing budget to test if the idea is feasible before even entering discussions about the new product with the customer. The CEO said: *“Yes, either our customer wants us to make this kind of feasibility study or proof of*

concept type of work or then we might experiment things without customer order to test if we should continue talks with our customer about something new and more radical. So, we make a small experiment as part of the sales and marketing budget to see if the idea is even feasible and then it is much nicer to continue discussions with our customer when we can talk about when and how it is possible instead of discussing if something could be possible.”

Several companies had made resource changes to be more ambidextrous. These resource changes have been mostly hiring new employees to do development work. One CEO said: *“Well, we started two years ago straight ahead that we go with this ambidextrous approach. And to the new business development, we hired new resources. We have also allocated some old resources to get the best knowledge and capabilities from there. And we have been continuing in hiring new people this year too.”* Another CEO said: *“Not other than we have hired new resources like these two development employees as they also do our production and process development. So, we have hired these people so that they actually have time and abilities to develop our business with these more radical innovations.”*

One respondent said that the technology has developed so much that they had begun hiring new employees with doctoral degrees. Even though these hires were not made directly to development tasks, ambidexterity was kept in mind. The CEO said: *“We have hired more people with doctoral degree so this way yes. The technology gets more complex and this way requires more education and capabilities. This has been more the trend with us. So, we constantly search for people with higher knowledge than ourselves.”*

Some companies said that they had changed organisational structures to enable ambidexterity. One CEO said: *“Well, to enable it we have made a new organisational structure.”* Another respondent said: *“Well, maybe on the office staff side we could see that there has been made changes as we have increased our efforts to these development types of works. So, compared to earlier years this can be seen.”* One respondent talked about a new team where was mixed new and old employees to enable exploration. The CEO said: *“In this team we have new and old people mixed and*

there is a very open discussion from ideas coming from both sides and we then try to seize these as well as possible either now or later if they just are possible.”

4.1.2 Environmental sensing from multiple channels

The interview data brings up the importance of salesmen and the CEO in noticing changes in the environment. Most companies saw that discussing with stakeholders, especially customers, were the most important way to scan the environment. One interviewee said: *“I think the biggest thing is that our salesmen meet our customers constantly and then we go through the feedback they bring back here from them and try to figure out what is happening in the environment.”* Another CEO pointed out especially the role of the salesmen: *“And especially the salesmen are essential here to follow how the customer demand evolves and how we must react to it.”* One CEO saw their close customer relations bringing them competitive advantage: *“It comes from everyday monitoring and we are in close contact with our customers and this is one of our strengths that we are in so close contact with them and discuss with them constantly and get from there these ideas and changes and reflections from the market. And from these we make a picture of the environment and if there is something that is changing there.”*

Multiple companies also mentioned discussions with suppliers important in addition to customers. One interviewee said: *“We constantly listen to our customers and suppliers and all the time we listen what is happening in the environment with lots of discussions and from there we get information how the environment looks like.”* Also, some companies mentioned following their competitors to help build a future picture and estimations about the market. One CEO said: *“We have a lot of our own network in Finland and abroad and our partners’ networks and we go through these rather broadly by discussing what is happening in the market and we see also from our competitors what they are doing to where our industry is heading.”*

Many company representatives mentioned environmental scanning being difficult for them. Also making sense of the information and how to react to it was said to be challenging. One CEO said: *“It is everyday work as the environment changes nowadays so fast. Our exports are in important role and our representatives in the world*

are there. Situations change quickly and it is not always so easy to sense these changes. If we think the US and Canada where we export some products, after Trump became president, the originally Indian areas were given rights to build gas pipes and this affected our business instantly. So, what affects what is sometimes difficult.”

The companies pointed out the importance of fairs and media in sensing new opportunities. Some companies had started to visit their stakeholders' fairs in addition to their own industry's fairs to build a broader picture of the business environment. One CEO said: *“Of course fairs and industry's magazines gives you messages and insights about things. We go yearly to 2-3 specific fairs. From there we hear always what new is going on and what our competitors are doing and get new ideas from that. Then we go to some of our customers' industry's fairs to see what our customers are offering. There we do not need to have a stand but we observe only and go there to hear what our customers are talking there and it tells us what types of demands they are giving us in the future. Then we follow media of course and from there take hints if we can.”* Another CEO talked about these stakeholder fairs: *“If we think what we did before, we were only in our own industry's fairs. Like in fairs where we try to sell. Now we have changed that our sales persons go also to other fairs like our customers' industry's fairs and sense the feeling there. Then we read our industry's magazines.”*

Different stakeholders' fairs were seen as a viewpoint for the whole market and what kinds of trends are directing the future in the companies' own markets. One interviewee said: *“And also technical fairs are some kind of viewpoint for new ideas. There you can see what kind of trends there are in the market.”* Another CEO said: *“At least to some level we visit different fairs around the world. There we sense where the market is going. As we do business with car industry, we look where they are going and what others are doing as well.”*

Some respondents had found ways to sense opportunities from their own desks by browsing the Internet for new ideas. One CEO responded to sensing the environment: *“I would say it comes from our employees who follow actively the environment and the world and in this digitalisation, we start from looking YouTube videos and*

follow these and are involved in many discussions.” Another CEO saw similarly: “Nowadays IT is very good for this type of things. We browse the Internet and there can well be ideas how to do new things or complement our work.” One CEO said that fairs and industry media are more basic level sensing and to get deeper insights, you need to browse the Internet: “But for more deeper level, for me has become very important this type of Internet browsing.”

Nearly all interviewees saw social capital as a potential channel for new ideas and opportunities. One respondent said: *“It might very well be. I do not have any case with us that it would have come but I believe that can be a good channel.”* Another CEO also saw social capital as a new potential sensing channel: *“There is probably a truth there. If you have a good network also in civil life and not only in business, it is a benefit as a new idea can come from anything anywhere. So that you have a broad communication circle and you have a lot social relationships with different kinds of stakeholders.”*

Half of the companies recognised that social capital had brought them radical ideas for exploration. One respondent said: *“Yes, we go through this kind of discussions rather much. If we want to be able to succeed abroad, we need to do this kind of thing. We are in a good situation as we have a broad network of customers who can help us with these. We have never needed to do things alone. Outside the company we have good networks and get ideas from there.”* Another respondent saw similarly: *“Well this is certainly one thing. It is exactly the point to be able to identify these things and find out how a successful thing somewhere else could be applied for us. We do this as well.”*

Social capital was also seen to help in finding success factors to other issues than just sensing opportunities. One CEO saw social capital this way: *“I think it is central as it is exactly what I have talked about this transformation, it is very central to it. It relates to this, what kind of factors we have in new environments and how we can sense them and how we can take these things actually to the end. It is crucial.”*

4.2 Top management facilitating strategic renewal

The interview data indicates that the companies' top management is the facilitating factor to perform strategic renewal. In most companies, the board of directors and the CEO are responsible for making a strategy for the companies and thus responsible for deciding the correct strategic direction for the companies. The interview data also shows that the managers, especially the CEOs, are in crucial positions to decide which opportunities and ideas the companies seize. The managers' leadership skills were identified to be the most important facilitating factor for a company to transform successfully. Top management facilitating strategic renewal results from three second-order themes called *Top management responsible for strategic management*, *Management seizing opportunities with financial promises* and *Management openly leading the transformation*.

Top management responsible for strategic management refers to the top management's role for creating and implementing strategic decisions in companies. In most companies, the board was mentioned to be responsible for creating a strategy for the company with the management team's, especially the CEO's, help. This highlights the importance of strategic capabilities for these board members and CEOs who are responsible for strategic management. The strategy was in most companies made for either three or five years and this strategy was updated yearly. If the companies saw changes in their environments that required strategic changes, the respondents said they are flexible to change their strategy also during the one-year's strategic cycle. Almost every respondent saw that a company's strategy was important for the company's success as it gives a direction for the whole company and vision for the future. The companies recognised path dependencies from their historic decisions that affected their strategic decision-making hindering possible strategic options available for them.

Table 3: *Top management responsible for strategic management.*

Evidence for <i>Top management responsible for strategic management</i>	
	<ul style="list-style-type: none">• The board of directors and the CEO are responsible for making a strategy for the companies.

- Strategy is made for either three or five years and reviewed yearly.
- Companies are flexible to change their strategy in the middle of the strategy cycle if they see it necessary.
- Strategy is important for the companies by giving a shared direction and vision for the company to follow.
- Managers see their companies having path dependencies from historical decisions reducing strategic options.

Management seizing opportunities with financial promises refers to the finding that customer demand plays a significant role in seizing opportunities. The most important seizing enabler was a business case through customer demand. In addition to this a short enough payback time for the required investments were seen important. Also, companies' own resources as capabilities, finances and partners were seen important to seize opportunities. Many companies said that they would like to invest in new technologies as they have could not seize sensed opportunities with their existing technologies. Another factor to enable seizing was strategic development that supplements their existing business. Most companies said they would like to increase their sales and marketing resources abroad to seize new opportunities there. The CEOs of the interviewed companies were responsible for explorative actions either by seeking new ideas or functioning as a filter to seizing new ideas. As the CEOs in most SMEs are also responsible for sales functions and deciding about new investments, these findings highlight the facilitative importance of the top management.

Table 4: *Management seizing opportunities with financial promises.*

Evidence for <i>Management seizing opportunities with financial promises</i>
<ul style="list-style-type: none"> • The most important factor to seize opportunities was a business case behind the opportunity. • Companies' own resources as capabilities, finances and partners were also seen important for seizing opportunities. • Strategic development and the new opportunity fitting into existing business also enable seizing opportunities. • Companies would like to increase sales and marketing abroad to find more

opportunities.

- The CEO and development employees are mainly responsible for explorative activities in the companies.

Management openly leading the transformation refers to the finding that managers' leadership skills were identified to be crucial for successful transformations. Many respondents stated that a successful transformation starts from the management's commitment and support by creating a positive culture towards change. To enable a sustainable transformation the management needs to show visibly to the employees the reasons and motivations of the change to make them understand the reasons behind transformations. To enable this, many respondents mentioned educating employees and surveying new working methods to disable employees falling back into old ways.

Table 5: *Management openly leading the transformation.*

Evidence for <i>Management openly leading the transformation</i>
<ul style="list-style-type: none"> • Successful transformations start from the commitment and support from the management by creating a positive culture towards change. • Managers must visibly show the employees why the change is happening to motivate them and make them understand the reasons behind the change to make the transformation sustainable. • Employees' sufficient education to new routines is seen important as well as surveying the changed working methods to disable falling back into old ways.

4.2.1 Top management responsible for strategic management

In most companies the board of directors with the help of the management team, especially the CEO, made the strategy. The most common way was that the management team discussed strategic topics led by the CEO and these issues were taken to the board of directors who then made the actual strategy for the management team to implement. One CEO described the process like this: *"I, as a CEO, bring together*

things to the management team that we then go through. Then our board continues our work and then we still discuss with the few key owners.” Another respondent described it: *“We have board meetings and there we go through current topics and decisions and then the actual implementation is done by the management team.”*

Many companies saw their strategy as an A4-paper that gives the management team a direction to follow: *“Well, traditionally it has been done so that we have a strategy cycle every year and there is then heard our management team and our international sales management team that gathers a few times a year together and from there we get trends and information where our customer needs are and where they are going. I am there as well and CFO and sales manager. And from there the knowledge goes to the board and they process this then. Quite much it has been sales and management team’s view of things and then made a vision of it and then a strategy. The board has then shortened it to an A4-paper and made it to a model for our work.”* Another CEO said: *“We take ideas to the board of directors that this we would like do and how our next five years looks like and from there they produce a one A4-paper.”*

Most companies stated that they have a strategy for three or five years that they update yearly. One CEO said: *“Well, we have a five-year strategy and goals and visions. But we update these yearly.”* Another respondent said: *“We look things in three to five years perspective and the projects related to it comes yearly.”* One CEO described the strategy cycle in more detail: *“We have these kinds of must win battles three to five for each year. We try to follow these but of course everyday work is that we do also a million other things but we focus that these get at least done. Then we have usually this type of three-year strategy how far we look. It of course means we also look towards five years ahead but after three to five years you know that things are going to change rather much already. Our industry is very old and traditional but when we go to these digitalisation issues, things are changing very rapidly.”*

Some companies stated that they have different strategies for different time spans. One respondent said: *“Basically the short time is one year, then the mid-range is two to three years and the long-term strategy is then four to five years. So, we have a strategy to 2020 at the moment that we then update.”* Some companies also said that

they had made very specific calculations for the whole strategic time span: *“We have income statements, balance sheet and cash flow calculations calculated to 5 years ahead where we have included all the investments we believe we need to get where we want.”*

The companies stated that they are flexible to change their strategic directions in the middle of the strategy cycle if they saw it reasonable and necessary. One CEO said: *“I see that we are flexible when there rise new opportunities. We certainly analyse the opportunity if it has sense for us to seize it even though it would not be in line with our strategy. So, we are flexible and can take another strategic path.”*

Many respondents said that they had made agile changes to their strategies because of changed customer demands and changed environment. One CEO said: *“Well, I must say that you must have a vision, you must have some level strategy but you must not live too closely to it but to listen customer needs... You need to be able to adapt and change.”* Another CEO responded: *“I see that we have capabilities to make changes if we just see that it is reasonable as this is business-oriented work. We see that we have to do what customers want. We have actually made changes inside our bigger strategic direction in the smaller directions and changed our production and made investments that we can manufacture totally new things. So, we have been on the same road but we have changed the lane inside it because we have seen from the environment that we need to change direction a bit as the demand shifts. We have seen that we need to focus on new areas where we have not been before.”*

Many companies said that they see their small size compared to large companies as a competitive advantage and the agility to change directions quickly if necessary. One respondent said: *“In this small company, we are agile and easily can change it. You do not need to have long internal discussion but it is fast and clear. It is important to understand the need to change. Still we do not have so that we would constantly change from one direction to another. If there comes changes we need to analyse how it affects our long-term strategy and how it changes this.”* Another respondent stated: *“Actually very flexibly if we just see that there is an actual opportunity for us. There we are very agile and flexible to change our strategy in these occasions.”*

The interview data shows that the respondents see that strategy and company success have a clear relationship. One CEO said it like this: *“Then when the strategy is made well, there are clear mid steps or a roadmap where the whole human resources are committed to and go forwards towards. So, I see it has a large importance. Of course, it is dependent of the market and what is happening in the environment but still I would say that having targets and roadmap you can get better success.”*

One CEO saw that without a strategy it is impossible to make investments that brings the company profits in the future: *“Success needs always plans and thinking but especially for the future success. You need to make and implement planned things to succeed in the future and this is exactly strategy as I see it. If you do not have plans, visions and implemented things, you cannot really make investments that create you profits in the future. And that way you always need a strategy.”* Another CEO talked about the same issue by stating that strategic changes have brought them better success: *“We would not have succeeded without it. What we have written to our strategy, they have been clear changes to our business that we have then implemented and they have brought us what we have. If we had continued as before, we would not be doing even close the level we are now succeeding. So, I see it as a very important particle.”*

Most respondents said that their strategy gives all the employees a vision and a direction to follow instead of different employees making opposite decisions. One CEO said that: *“I see that there is a clear relationship. We make considered decisions because of our strategy and in time we can see if they have been successful. But basically, this that we do not hassle around different angles and doing everything, instead we have clear focus areas where we focus and that way we can get some results. So that we have a clear direction even though the direction would not be the best one but we all aim towards the same direction is the important thing.”* Another respondent stated: *“Well if we would not have a strategy, everyone would do their own things without a clear direction. So, strategy helps us with our work as it gives a direction where we want to go.”*

Half of the interviewees saw that their decisions had created path dependencies. One CEO saw path dependencies in technology investments: *“We have this all the time.*

We have invested in something that works and then it affects at least in the background. When we have invested in something, we stay with it rather long time even though we see that there are better solutions.” Another CEO talked about making strategic decisions in the past: *“There are a few things in history that should have been made differently. We were offered a product in the past that would have opened us a lot of doors and nowadays it would be very big advantage if we would have that product now.”*

4.2.2 Management seizing opportunities with financial promises

The most important factor to enable seizing opportunities was a business case behind an idea or an opportunity. One interviewee said: *“It is a lot of that if we see that the opportunity has a business case in the future... You must see a long way business opportunity if you create radical new products or so.”* Another respondent said: *“It does not really help that we have a new product if there is no demand so there has to be strongly a business case with our retailers behind.”* One CEO said: *“The number one thing is the interest from our customer. If they indicate that they are really interested in taking developments forwards, then we are too. So, business case cleanly.”*

Many of the respondents said that there needs to be seen a short enough payback time for seizing the opportunity. One CEO said: *“Yes, we do not have time and resources to start developing something that does not have business opportunities within the next two years. I see that we have so much development needs with our existing products and processes so to start developing something new, it must have rather much concrete base behind it.”* Another CEO said: *“For us there needs to be short-term payback time calculations... Then I do not know, after all it always is about money to some point in this kind of a smaller company.”*

One CEO talked about more strategic approach to the financial benefits of seizing an opportunity. The CEO said that the opportunity must fit strategically to the existing business and it should bring better resource utilisation that can be seen as profits in the longer time span. The CEO said: *“Well of course when we find an opportunity, we must think how we can adapt that to our existing work. And then analyse how it*

affects our business and what are the benefits. And of course, somehow it must be tested that it actually works too... Well, all new opportunities must somehow better utilise existing resources or bring something new that increases our quality. And all of these then we can see in the profit. But we try to use also other measures than profit so that it is not always just about it. These measures there between actually show us the level of our development."

The majority of the interviewed companies saw that their own resources play an important role in seizing opportunities. Most of these interviewees saw that especially there should be found available finances to seize ideas. One respondent said: *"You need to have capital and capabilities in mind. If you do not have finances to seize the opportunity, then it is not possible."* Also, the companies' capabilities in addition to available finances were mentioned with many respondents. One interviewee said: *"But the financing for opportunities is always critical and then also the capabilities and knowhow level of the team you currently have."* Another CEO said: *"Then, enough resources as money or capabilities to be able to seize an opportunity."*

Some respondents said that their existing machines and technologies are critical resources to seize opportunities. If an opportunity requires new machine investments, the opportunity can be left without seizing because of insufficient finances to the investments. One CEO said: *"And then of course what we actually can produce with our resources. So, capabilities and does the new product fit our product scale and can we manufacture these new ideas with our machines."* Several respondents said that they use their partners and other stakeholders to find additional capabilities to enable seizing promising ideas. One interviewee said: *"We would like to do more than our resources enable us. But if we do not have capabilities, we try to find them from our cooperation stakeholders."*

The interviewed companies had recognised that their issue with seizing opportunities and growing was because of insufficient sales and marketing personnel. Several companies saw that their only way to get new opportunities in their existing markets was to grow abroad. One CEO said: *"Marketing is the starting point for everything. I would focus on getting people over the globe, as it is the only way we can get more opportunities."* Another respondent said: *"I see that our growth is only dependent for*

us to get more customers abroad to increase our exports. So, I would hire sales representatives to every country who would be dedicated to market our capabilities and products in these countries and find us new customers.”

Some respondents said that their sales methods should be changed as they were not efficient enough or the salesmen do not have required time to do marketing. One respondent said: *“So that it would be done differently than before so that there is not this same salesman but there should be found new ways and efficiency.”* Another CEO said: *“The biggest bottleneck I see is the lack of human resources. The time of employees go to daily projects. Then there is not enough time to do required marketing.”*

In the ambidextrous companies, most CEOs saw their own role important in exploration. One CEO said: *“I am the one who mostly goes through the ideas that comes upwards the organisation so I see it as my role this way.”* Another CEO said: *“I see it very important so that I must be very much involved there to support. It is a rather difficult role some times when there comes sometimes very much ideas and I need to be there filtering and deciding about what things we seize. So, I need to be there leading and analysing the work.”* One CEO highlighted the exploration point of view: *“I think I take part more in the newer things instead of working with older products. And I think I have an example role that encourages also others that it is good to move on to newer things through filters so that financial aspects are taken into account. But I see that the CEOs role is to show example and bring and spread information inside a company and this is significant.”*

4.2.3 Management openly leading the transformation

The interview data indicates that successful transformations begin with the management creating a positive culture towards change. This way the management supports the employees to change and makes the transformation less stressful for them. One CEO said it like this: *“I think it is like sustaining the change atmosphere so that it is a normal part of business to transform and change. Of course, it helps to take through changes and the importance of management is to support and motivate employees to the vision and ensure that everyone is committed to this vision.”*

Many respondents said that managers' leadership skills are important to create this type of atmosphere. One interviewee said: *"Yes, absolutely. And very rarely a change happens without management's support. And even when there is, a change rarely happens because routines and people are slow to change."* Another CEO said that sustaining this type of atmosphere makes the employees to get used to constant changes: *"We have got such good personnel that they have learned that business is constant change and development. When everyone here has work and gets paid for it, they are also willing to adapt and change for it. And this is what I always highlight to them."*

The interviews also show the importance of managers showing employees the motivations and reasons behind the transformation. With employees visibly understanding the change, the transformation becomes easier and more successful. One respondent said: *"Well, the new has to solve enough of the old issues so that the reasons behind the new are this way made visible and clear for everyone."* Another CEO said similarly: *"Always certainly comes this kind of things when you renew and transform an organisation and you must be able to justify and motivate the changes."* One respondent saw this type of visibility bringing enthusiasm among the employees: *"But the basic issue is that everyone would have an understanding why things need to be done how we do them and this would bring motivation and enthusiasm to problem solving to every aspect both in production and office."*

One CEO saw that the motivation and visibility could come from crystallising your company's vision and purpose to the employees and showing the reasons behind the change from that perspective. The CEO said: *"I think this is a very good question and I think this affects the whole society. In this kind of change where technology brings new opportunities, how can you utilise them and a success factor is that you should crystallise your vision, why are we here, what are we doing. And if you lose that base idea, you can get totally lost. If you know what is your basic idea, then all of these can be utilised and everyone can come to help, also digitalisation. I see this as a central factor and it also helps in renewing company's culture and leading the people change. For people the barrier is then lower. The fear there is not so high as the basic things does not change."*

One CEO highlighted the human perspective in transforming and said that the visibility needs to be taken to every single employee as they often become concerned with transformations. The CEO said: *“Well that is the key thing that the management has to be supporting the transformation. And you need to be able to market the idea inside the company as well and be able to argue for it. You have to be able to motivate the employees to the change and make the employees see that we improve when we make these changes. And people are always very concerned about their own jobs and salaries related to developments. So, you need to take into account to human perspective as well.”*

Many interviewees responded that a successful way to transform is to educate existing employees. One CEO had realised that often the education comes too late: *“I do not know how to secure that but with us or with probably every other company the training for employees comes a bit behind. But in reality, it should start so that you have the resources to take the change through and educate the employees before the implementation of the change. But maybe too often the theory is behind practise.”* Another CEO said: *“We have had to educate our existing employees if we can say that this is related to this. There has been rather much education for employees to learn these new things in the production.”*

Some respondents said that there needs to be put surveying methods to keep the employees from shifting back into the old ways and working methods even though the employees would be educated to new working methods. One of these CEOs said: *“Well at least you need to have the starting point clearly understood. And then doing the new things with this new way and measure this and be able to show that developments have been made. And then of course there needs to be something put there to keep the new standards or levels so it will not drop off after a while. With all new things, it easily slips back to the old if there is not any measuring to keep track of the newer things. And then there is needed further training and education to employees to get and keep the new standards.”*

Some interviewees had recognised limitations with educating employees to new things. These respondents said that not all employees are capable of learning new ways and methods and this creates pressure to make resource changes. One of these

CEOs said: *“It is a human thing that some people design their capabilities in certain things and if we think this kind of basic production employees, half can genuinely create new capabilities through learning. The surprising thing here is that here in the office less than half can genuinely shift their capabilities to new things and this is challenging and creates pressure to change employees here in the office.”*

4.3 Competitive developments with digital environment

The interview data indicates that companies have been forced to make developments and changes to stay competitive, as the environment has changed around them. Based on the interview data, digitalisation has forced companies to become more efficient and productive. Companies have made changes their resources and business models to adapt to the digitally changing business environment. Companies have seized digital opportunities to cope with the competition within the borders of their resources. These opportunities have been new ways to perform internal and external operations and new digital product features. Competitive developments with digital environment results from two second-order themes called *Competitive challenges with digitalisation* and *New digital opportunities*.

Competitive challenges with digitalisation refers to the environmental pressure mentioned by the respondents to invest in digital issues to stay competitive in the market. These investments could be either digital systems or digital manufacturing technologies that had increased efficiency of work and productivity in the manufacturing sector. Because of this pressure, companies have invested to at least one of the two options. Companies saw that the competition had increased because of digitalisation. Companies had made alterations to their business models because of the digital change in their environment to better adapt to digital changes in a profitable way. Companies had made resource changes by hiring digitally capable employees or programmers to gain more digital capabilities. Demand for digital features in the companies' products was noticed by the interviewed CEOs and companies had begun to develop and offer these features.

Table 6: *Competitive challenges with digitalisation.*

Evidence for <i>Competitive challenges with digitalisation</i>
<ul style="list-style-type: none">• Efficiency and productivity have increased because of digital solutions and digital manufacturing technologies.• Environmental pressure to develop digital issues to stay competitive in the market.• Competition has increased because of digitalisation.• Business model changes have been made because of digitalisation.• Companies had made resource changes because of digitalisation and hired digitally capable employees or programmers.• All companies had made investments to either digital systems or digital manufacturing technologies.

New digital opportunities mean that companies have seized new digital opportunities to cope with the environmental change created by digitalisation. Companies have changed their sales and marketing more towards digital channels. Digitalisation had changed companies' communications, making them easier and a lot faster both internally and externally. With these better communication options, companies saw their partnerships improved and gone deeper. Digital tools had changed ways of working resulting in more efficient working methods. Digitalisation has created new opportunities to companies' products as digital features. Some companies had also found new markets with the help of digitalisation.

Table 7: *New digital opportunities.*

Evidence for <i>New digital opportunities</i>
<ul style="list-style-type: none">• New digital ways have revolutionised the ways of sales and marketing in the companies.• Digital communications have become easier and faster both internally and externally.• Digitalisation has created new opportunities to the companies' products.

- Digitalisation has opened new market opportunities for the companies.

4.3.1 Competitive challenges with digitalisation

Many interviewees said digital systems and manufacturing technologies have brought them productivity and also efficiency in their work. One CEO said: *“Of course work methods have changed and the effectiveness has increased. There is digital designing and flow modelling digitally and in the same time we can nowadays do more.”* Another respondent answered: *“Well, it has increased efficiency of our work and then we are able to predict things better than before. We can look certain values and then react to things based on these so that things do not come as a surprise for us. And with this we can make our operations better.”*

Many respondents saw that digital solutions were the answer to create their business further and stay competitive. One respondent said: *“Productivity and effectiveness is based on digitalisation. So that you are able to get information from your work and use this information to develop your business and increase productivity. This has digitalisation helped.”* One interviewee said: *“The competition has always been tough but those who have understood to use digital opportunities have succeeded a bit better.”* This has created pressure for the interviewed companies to make digital investments to stay competitive. One CEO said: *“Our industry is among smaller companies where the capabilities to utilise digitalisation are smaller than with large companies. So, the companies who can utilise these opportunities are in a stronger position and can compete.”*

Many respondents saw that the competition is changing in a faster pace than before creating constant development requirements. One CEO said: *“It will never be on the level I would like as digitalisation goes forward with such a pace. I see that the biggest problem with SMEs is that even with the companies that really invest in these digital things, invest too little.”* Many respondents saw that the actual issue is to cope with the fast changes. One CEO said: *“At the moment, it feels like our digitalisation attempts have taken us to the front line with advantage. But that is always possible to be temporary. The environment and others change as well and we need to keep going forwards and upwards and we need to ensure that we react and change and grow.”*

One CEO said that the success comes from keeping up with the digital changes: *“Well certainly it has at least changed the competition and fastened changes. The winners will be those who can keep up with the change.”*

The interviewees saw that digitalisation has increased the competition in their industries. One CEO said: *“The competition has certainly increased and become more intense.”* Most respondents who had this point of view saw that the reason for this was globalised business because of the Internet. One respondent said: *“Yes, when we have the opportunity to go abroad, others have opportunities to come to our home markets. So, in that way it increases the competition also.”* Another CEO said: *“Well, if we look at digitalisation in a broader way and for example the words social media, the business has become globalised so that the competition in our industry grows and you can easily, or easily and easily, bring products here and you can find easily products.”*

As digitalisation has created changes to the business environment, companies had made changes to their business models to better adapt to the changes. Especially in the sales and marketing side, many respondents had made changes. One CEO said: *“Yes. Everything is culminating towards selling service, lifecycles and optimisation instead of just hardware.”* Another CEO said: *“But it has required changes to business models so that we have been able to utilise what IT enables. Then the Internet brings new things to the way of working.”*

Some companies saw that they had to go through all their processes to see what digitalisation had to offer to each part. One CEO said: *“Yes we have actually, as we started with this company architecture roadmap, we took all processes aboard. We went through every process through if it fits here or should it be changed and we have continued to do this work. So, if we think business models, digitalisation is making the differences. Even though we do sell our products ourselves, many distributors are online.”* In some companies, the changes had not yet been made but the change was seen inevitable. One respondent said: *“It is a bit too early to say but we will need to do them especially in the sales side, that is obvious. It is still too early to say as it is in the processing phase but it affects them but I do not know yet how broadly.”*

As digitalisation has created requirements for new capabilities, companies had hired new employees to cope with the new needs. Mostly these new employees were digitally capable employees to take care of the companies' digitalisation issues. One CEO responded: *"Yes, we have hired people because of this digitalisation solely. And the personnel we have hired must have had some kind of digital experience or education. So, we have increased our resources on that side."* Another respondent said: *"Well, in personnel we have now one person whose task is to develop digitalisation for us. This is a clear resource change."* One interviewee said: *"Yes, we have hired one person whose task is to take care of these digitalisation things. He has been here now for one and half months."*

One CEO mentioned that they had changed their focus in hiring also in other hires than directly in digital issues' hires. The CEO said: *"At this development project we have hired one person to this project. But we have also been hiring people and the focus has been in these younger educated people that can easily adapt to these digital things."* Some companies said that they had hired programmers as their products had become more digital. One respondent said: *"We have built an ERP-system and a documentation system and we have employees taking care of these and they have been hired to take care of these digital changes. And in the coding side, we have been hiring and the programming personnel have been growing constantly. And IT-support has grown simultaneously."* Another respondent said: *"Well, we have transformed us to become partly a software house so we have that way increased our resources there."*

All interviewed companies had made some kind of investments to digital systems or technologies to stay competitive. One CEO answered: *"Very much like I said, our investments in the past six years have been the largest investments in the company's history and they are precisely to this."* Digital systems had created opportunities to create new type of business for some companies. One respondent said: *"Yes, we have these internal systems but also these service platforms that enable us to offer them. For a company of our size, we have invested very heavily on these."*

Most companies had made investments to digital manufacturing technologies. One interviewee said: *"We have invested to production technologies. We have not robot-*

ised any parts of production but we have invested to smarter technologies that we can utilise already in the designing. We can program the manufacturing already in the designing part so that we can leave some manufacturing parts totally away. And in this way, we have more efficient technology.” Another CEO said: “Yes, during the last 3 years, we have invested to modelling a system and machines’ programming that 3D-models enable. Then we have bought many robots and their programming is one digitalisation point.”

4.3.2 New digital opportunities

Many interviewees saw that one of digitalisation’s largest opportunities was in sales and marketing. One CEO said: *“I see that one of the largest things with digitalisation are these customer interfaces where people are. So how to do marketing. How customer deliveries are made. How customer feedback is received. How customers are speaking about our brand in the world. I believe this is the largest change.”* Another interviewee said: *“The other is sales and marketing that is in huge transfer. From so small things like how to be in touch with sales representatives, do you travel to the other side of the world or will you have a webinar or a Skype-meeting and these changes the way of communication. Then there is real time cloud service based selling. We are taking into use at the moment a system that we recently tested that takes the ERP into cloud and hopefully in a while we can take from there the information to a real time developed sales system.”*

Digital software had become a new tool to help selling in customer meetings for some companies. With this kind of software, sales representatives are able to configure the products already in the initial sales meeting to fit customer requirements. One CEO talked about this type of software bringing competitive advantage: *“We have much better abilities to show what we are selling in a 3D interactive virtual software.”* Another CEO said: *“The change is still happening but we have taken into use this kind of configuration tool that I mentioned already. So, salesmen can use our self-developed configuration tool where they can go through the product construction with the customer either based on an offer or by discussing with the customer. It is filled to this system and it transforms the information to our production, purchasing etc. and gives timetables and makes material needs and information to after sales*

in our system saving what features were involved in this specific product. This is the most concrete thing for us.”

The interviewed respondents said that digitalisation has made communications easier and faster. Digital communication tools have helped specially to communicate abroad to either customers or own employees. One respondent said: *“Communications, as we now have projects abroad, the communication and support is basically the same that you would be physically there. This has not been possible before.”* Another interviewee talked about internal communications: *“Our design manager is organising designing so that his work partner is in Poland and they can still work as a pair. Nowadays you can work efficiently as a pair with a person who is in another country and environment.”*

Digital communication tools were also seen to bring customers closer and deepening partnerships. One CEO said: *“And then modern tools to communicate closely with our customers. This enables closer partnerships with customers as they open their logistics and warehousing to us. And they do not have to take care of our delivered components as we provide these to them automatically.”* Digital tools used in communication were also helping companies to compete with larger competitors. One respondent said: *“Digitalisation enables us to be there present by Web-meetings and this way gives us customer communications. This way we can compete with larger competitors who physically work with the customers daily. We cannot be there every day like them, so then it is challenging to compete with them. But with this we can be there and help them and give support and be present without being there physically.”*

Several interviewees saw that digitalisation has brought product opportunities to their products. Many of these respondents said that they had digital sensors in their products sending and receiving information. One respondent said: *“We can put to our products digital sensors that measure it and give us information for example for maintenance services.”* One CEO saw that the information from the products could be mixed with other information creating new opportunities. He said: *“When you have 130 sensors in your products, there comes so much information and there comes these reports, you can use this information to develop your business. Then, when you have this sensor data, environmental data, weather forecast data etc. the*

integration of all the information, the opportunities are endless. We have had for long-time sensors in our products but now there is even more sensors with this IoT.”

Some respondents said that their competitive advantage comes from creating very developed products with digital features that cannot be produced in low-cost countries. One CEO said: *“It has been seen for a while, as it is so easy to use digital tools to ask offers from ten companies around the world and see who offers the lowest price. So, this affects certainly. Our cure for this is that as we live in Finland where labour costs are high, we have to produce so smart products that there are not many competitors who can deliver the same with similar standards of capabilities and service.”*

Companies saw that digitalisation has opened new market opportunities for them. One CEO said: *“During the last years, we have entered to a new market and there digitalisation has enabled us to go there as otherwise it would have been an impossible idea. But now we are there and we have very strong development there and very interested and we have got very much done there without building a large physical distribution channel. With very agile and small ways we have been able to succeed there.”*

Another CEO talked about a digital service platform that had created a new service market for the company. The CEO said: *“With this service, it has created a new market, as we have not had a service business before as we have only been this kind of traditional hardware manufacturer... But with this service business we can serve our customers globally through the Internet in this area.”*

4.4 Lack of capabilities and resources as hindering factors

The interview data indicates that employees’ capabilities hinder the companies to perform strategic renewals. With the digital changes in the companies’ business environments, especially digital capabilities were seen insufficient at the moment. In addition to lack of capabilities, the interview data shows that the companies have lack of resources to enable proper strategic renewals. The employees of the interviewed companies were identified to be resistant to change, but the managers of these companies were also identified to be reluctant to change. The latter could be seen from

identified “letting go syndrome” and “success syndrome” among the managers. Lack of capabilities and resources as hindering factors results from three second-order themes called *Lack of digital capabilities*, *Companies unwilling to change* and *Lack of resources*.

Lack of digital capabilities refers to the finding from the interview data that companies see their own digital capabilities being insufficient. These capabilities are not sufficient enough to recognise digital opportunities that fit the company or even to recognise digital needs to stay competitive. This second-order theme also refers to the result that many companies’ employees were seen unable or unwilling to develop their digital capabilities to a required level.

Table 8: *Lack of digital capabilities.*

Evidence for <i>Lack of digital capabilities</i>
<ul style="list-style-type: none"> • Insufficient digital capabilities hinder recognising digital opportunities and needs in the companies. • Companies recognised their digital capabilities being too low at the moment. • Managers see their employees unable or unwilling to develop required digital skills.

Companies unwilling to change means that companies are unwilling to transform into new things and perform strategic renewal. Many companies responded that they have change resistance among their employees and inertia that slows down transforming. Also, managers were seen to hinder transforming as many respondents recognised “letting go syndrome” hindering successful transformations. The managers of the companies also recognised “success syndrome” in their company.

Table 9: *Companies unwilling to change.*

Evidence for <i>Companies unwilling to change</i>
<ul style="list-style-type: none"> • Change resistance and inertia among the employees slow down transformations or make them unsuccessful. • “Letting go syndrome” among the managers hinders successful transfor-

mations.

- “Success syndrome” was recognised among the managers creating unwillingness to make radical changes.

Lack of resources refers to the finding that companies own resources were insufficient to cope with desired developments. Many respondents stated that their own capabilities and knowhow are insufficient to develop new things and because of this they hoped to hire more employees that are capable of making significant developments. Daily routines among employees were mentioned to hinder development tasks leaving these tasks too little time. Managers saw also that their own time was too much tied with daily operations taking time away from strategic management. Only half of the interviewed companies said they could implement their strategies sufficiently, which can be seen resulting from insufficient resources.

Table 10: *Lack of resources.*

Evidence for <i>Lack of resources</i>
<ul style="list-style-type: none"> • Only half of the companies saw they could implement their strategy sufficiently. • Daily operations take time away from strategic management leaving it only occasional among the interviewed CEOs. • Daily routines hinder explorative tasks among employees. • Companies see that their own capabilities and knowhow are insufficient to develop new things. • Companies desire to hire new capable employees to enable significant developments.

4.4.1 Lack of digital capabilities

The interview data indicates that companies see that their digital skills and capabilities are insufficient. This hinders seizing digital opportunities and adapting to the changing digital environment. One respondent said: “*Let’s say that we have some capabilities but they are not sufficient to take these digital things forwards.*” The

same respondent continued: *“It could be good so that it does not need to be in expert level but we should have some digital capabilities to jump closer to the digital opportunities.”* Another respondent said it is difficult to find the correct tools that fit your own company: *“Well, let’s say that in better level. At least so that we would know in a smart way how to take in use modern digital tools that suit our company as all tools do not fit to our kind of business. So, we do not want to take into use things because they are fancy and others have them but we should find the correct tools for us and concentrate on focusing on learning and implementing them.”*

Insufficient digital capabilities and knowledge have created challenges to sense and understand the changing environment. Many company representatives said that they do not know what kind of digital tools there are to develop their business and what opportunities they can bring. One respondent said: *“Lots of it is related to this that here in the SME sector we do not have sufficient skills and capabilities towards digitalisation. The biggest challenge is that how do we see the opportunities from it; what there are and how can we utilise these then?”* Another CEO stated: *“These new digital tools to do business and this sales and marketing revolution recognizing what is even possible and what the opportunities are for us. This is something we simply do not know.”*

Many respondents stated that the issue with digital capabilities is finding and getting digitally capable employees to the interviewed SMEs. One CEO said: *“It is difficult to get employees here so far away. And we have rather high-profile technology companies here in the region and we have a healthy but tight competition for good employees. To get a staff that adopts modern digitalisation and IT systems, it is a challenge to get this kind of staff here.”* Another respondent stated: *“There are certainly developments to be done. Especially in these tools and opportunities with them. One issue is that we maybe do not even know what opportunities there would be and this type of lack of resources.”*

Multiple interviewees saw that their employees or owners were either unable or unwilling to develop their digital capabilities and knowhow to required new levels. One respondent said: *“It creates challenges so that all the owners of our company should be committed to digitalisation and have the ability to make decisions about digital*

things. I am a minority shareholder and if the two others are not interested to do something, I cannot get things forwards. And the challenge comes from that these owners do not understand the possibilities and opportunities with digitalisation and this is the biggest challenge for us.” Another interviewee said: *“Well, as we have a long history, the old work methods must be destroyed and because of this we need new employees as it seems that the older employees cannot be in front of the change.”*

Companies saw that especially the older employees are unwilling to learn new skills and work methods that new technologies require. One CEO noted: *“The issue is with employees, as there comes new machines with new technology, the employees should learn how to use new systems and computers with their work. How do we get 30 years employed employees to learn these new things?”* Another CEO saw a clear difference between generations: *“It creates challenges to our employees’ capabilities and for our new technologies. Our oldest salesman is already in his pension age, there is a big challenge, as these kinds of people do not adapt to these things. They do not have the will to start learning these new things. There is this gap between generations as younger engineers are familiar with digitalisation already from their childhood and then there is this group between where I count myself and then the older group where people are mainly not interested to learn digital capabilities.”*

4.4.2 Companies unwilling to change

Rather many respondents said that they face change resistance from employees during transforming. This kind of company inertia was seen as the most important hindering factor for transforming. One interviewee said: *“There is always resistance and frustration if things do not go forwards. Always when things are owned together, the things do not fight but people can. In this kind of smaller company, we must always do everything together unlike in bigger companies where it is possible to do separate things inside an organisation.”* Another CEO said: *“Even though I am not so young myself anymore, there might come resistance from the older employees that they do not want to see things differently and they have a more traditional way of approaching things. There is then a place to make an effort to get them to change.”*

One respondent said that instead of actual change resistance, people's safe feeling slows down transforming: *"People, it is not necessarily change resistance but we are people and of course we are familiar with safe feeling creating better feeling so then a paradoxical thing happens when your other foot is outside this comfort zone and this always requires certain changes inside a person and everyone are different and some people are not ready for this. Some people's basic nature is incapable of this and the balance with all of these things is important. And that is why I said people, not that people would naturally like to resist something but the barrier for some can be so difficult that it can be a very rough situation."*

Several companies saw that they had a "letting go syndrome" that hinders their transforming. One CEO said: *"Yes, it might be that it is rather difficult for us to critically analyse existing and old resources and see if they are actually usable or not and then release them if necessary."* Another CEO said similarly: *"It is difficult to let go of older things and with us we also hang the older resources with us. We let go of these too slowly, we should renew them radically faster."*

One respondent saw "letting go syndrome" as a humane thing: *"This is certainly a humane thing that we can find here as well a lot of things that you never need but if there would come a situation that they would be needed. Yes, we have this kind of thing, as it is difficult to let go of things."* Another CEO recognised this in their company but also saw that proper preparations help to overcome this issue. He said: *"Yes, I believe we have that kind of thing at the moment if we develop things. It can be difficult to let go of old ways and people are scared that the new things or ways will not work. So, it certainly happens but here we get again to it that if the change is prepared long enough before implementation, it leaves less opportunities for this."*

The interview data shows that many companies suffer from "success syndrome". One respondent said: *"Yes, I see that happens. I would say that we have that syndrome rather much. We do things like before as it has been successful some time and try to find issues from somewhere else externally like world economy and do not look maybe internal issues that could be done to develop us."* Some saw that this was because of the decision-making people's inability to change. One respondent said: *"Yes*

in some way. Not so largely than before. A few years ago, we had large ownership changes and the old owners had this type of thing but now it is reduced.”

Rather many companies see that “success syndrome” resulted from employees’ unwillingness to change and because of this they did not make strategic alterations as the old way of business had worked. One respondent said: *“Yes most certainly we have this issue. We have employees that have been here for 20 years and they are familiar with certain work methods and styles. So even in the production it is rather difficult to get these long-time employees to change their way of working. So, we have this that we want to be in our comfort zone and we do not want to jump to something new.”* Another CEO said: *“Yes that is constantly happening. And the fact that people here are resistant to change, they should be able to become proactively capable of change. So many times, we go with the same things as last year.”*

4.4.3 Lack of resources

Only half of the interviewed companies saw that they get their strategy sufficiently implemented. One respondent said: *“There are always shortages when we go through our business plan and strategy. There have been good ideas but they have not been implemented then. So many parts are often still in progress or incomplete.”* Another CEO said: *“I started here in autumn 2008 and in 2009 we made a concrete strategy with certain targets. We did not reach these targets we had there in the time we had thought. And we are not there even now what we then wrote as targets in euros.”*

Even though the tasks would have been implemented, for some companies the implemented strategy did not bring hoped results. This highlights the importance of capable human resources. One CEO said: *“Well, we have rather well been able to implement these strategy sessions and the plans after these, the exact tasks and goals for different business units. What we necessarily have not succeeded with is that growth by numbers. So, we can ask if the goals have then been correct ones or too modest ones when they have not brought us significant growth. I believe this is also with others the challenge. You can do the planned tasks but they did not then bring growth.”*

Nearly every interviewee saw that their daily operations take so much time that they do not have enough time to think strategic issues and concentrate on strategic management. One interviewee said: *“At the moment daily operations take time from leading and developing so they take too without question from strategic management.”* One CEO said: *“It is absolutely like this at least for me. That is what I have been thinking that I should get the chance to get away from the daily things so that I could look everything objectively and do strategic management.”* One CEO saw this issue being normal for a SME: *“Yes, in an SME it is exactly like this. The business is very different here compared to large companies as we are in a way committed to our work twenty-four hours a day.”*

Companies also saw that it was not only the managers’ shortage of time that hinders developments. They saw that the employees also have such a hurry that developments are not going forward because of it. One CEO referred to this: *“Well, hurry is a slowing factor as everyone has either actual hurry or habit of creating hurry in work and it results that you do not have time to educate employees or take into use new models. Hurry creates stress for people. It is a big factor that hinders this kind of work. And it also related not to just educating employees but also to develop new paths to development and new development projects and implementation of them and educating it.”*

Several companies saw that their own capabilities were insufficient for developing new things. One CEO said: *“Well of course we do not have capabilities for everything so that is why we have our supplier network that we can utilise when we need more capabilities. And sometimes even they do not have the capabilities and then we just need to raise our hands to surrender. So, there can be many hindrance factors but capabilities are a very concrete one.”*

Because the capabilities were insufficient for developments, most of these companies mentioned their desire to hire new capable employees. Most interviewees said that this brings challenges. One CEO said: *“I think that one kind of hindrance thing is finding enough capable employees. For example, in our new markets, I know that there would be work for us and would be new customers but we have not found a capable enough employee so we have not done these projects.”* Another CEO said: *“I*

would instantly double the man resources to development side of our organisation. It is not so easy as you need to find right people with correct capabilities.”

4.5 Synthesis of the findings

The findings of this thesis show that stakeholders have an important part in Finnish manufacturing SMEs’ adoption to the business environment. The companies’ stakeholders help the companies to anticipate changes and recognise new trends in their markets. The companies use contextual ambidexterity to cope with environmental changes and cooperate with different stakeholders to seize new opportunities.

The findings show that the top management, especially the CEOs, of the companies are facilitating factors to strategic renewal. The CEOs make the companies’ strategies with the board of directors and thus are responsible for creating an appropriate direction for the companies’ future. This points out the importance of the CEOs to constantly understand what is happening in the business environment and flexibly change the direction if needed. In transforming the companies in strategic renewals, the managers’ leadership skills are crucial. The managers must create a positive culture towards changing in their organisations and maintain this type of positive atmosphere. The managers must be able to motivate their employees to change their routines and learn new capabilities by showing visibly the reasons behind the changes. The CEOs are responsible for explorative attempts in the companies and they need to be able to create a business case for promising ideas to get them seized further.

Digitalisation has created competitive challenges for Finnish manufacturing SMEs. The companies see that the competition has increased with digital solutions and digital systems and manufacturing technologies have created the need for increased efficiency and productivity. Digitalisation has made changes to the companies’ profit streams creating the need to change the companies’ business models. The employees of the companies do not have the required digital capabilities to cope with these new changes and the companies have acquired new talent to enable developments. Digitalisation has also brought new opportunities for the companies. New digital tools, especially sales and marketing tools, enable the companies to compete in new ways

and in new markets that have not been possible before the digital changes in the environment. Digitalisation has also created possibilities for the companies to create digital features to their products. These features and the usage of digital tools have also opened new market possibilities for the companies.

The findings show that the largest hindering factors for Finnish manufacturing SMEs' strategic renewal are insufficient capabilities and resources. With recent digital changes in the companies' business environment, the companies have recognised their digital capabilities being too low to cope with required changes. Lack of these digital capabilities hinder the companies for recognising their digital needs and opportunities and thus hinder their environmental adaption. The companies also have inertia and change resistance among both the managers and the employees that hinder successful transformations and thus strategic renewal. The findings also show that the companies have insufficient resources to continuously cope with the changing requirements the business environment creates. Because of this lack of resources, most of the time of the managers and the employees go to daily routines and operations, which leave strategic management and development tasks only occasional.

In figure six below is shown the second-order themes and aggregate dimensions from the data structure following the methodology of Gioia and colleagues (2013). In this figure, the findings are visualised to show how the analysis from the interviews were made. The whole data structure beginning from first-order concepts to aggregate dimensions is shown in appendix one.

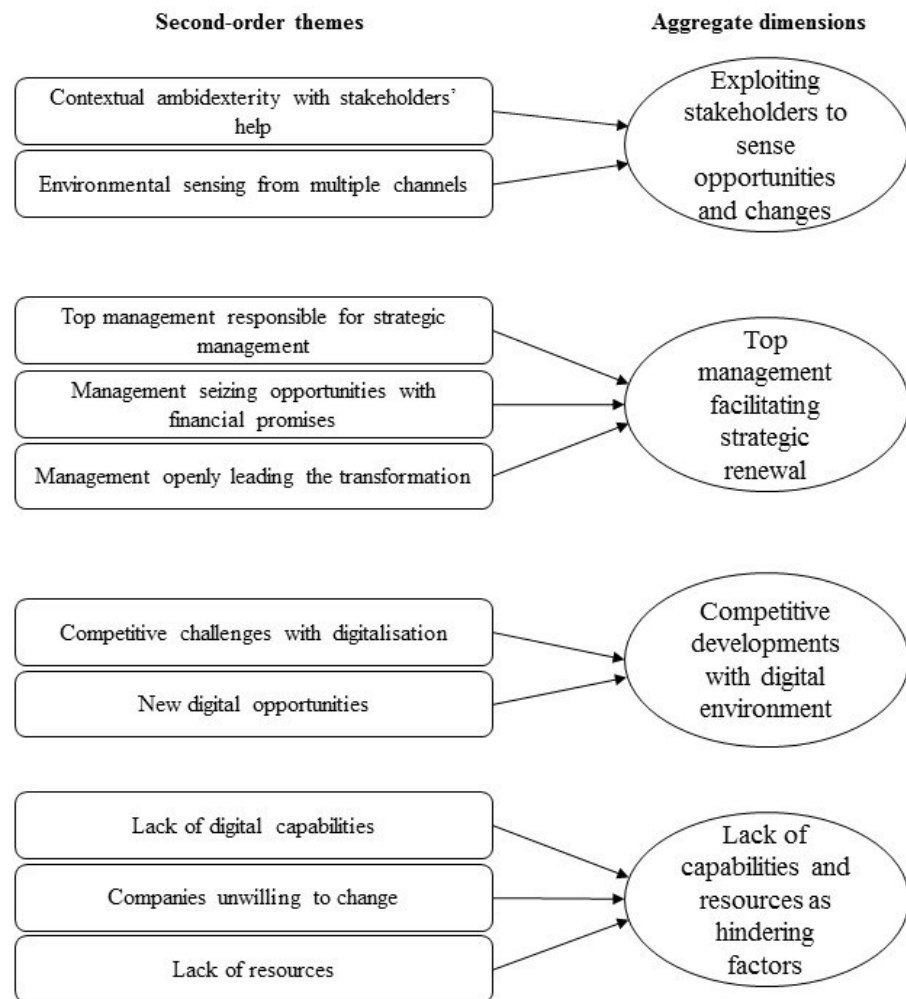


Figure 6: Second-order themes and aggregate dimensions.

5. DISCUSSION

5.1 Comparison to existing literature

The objective of this thesis was to examine how Finnish manufacturing SMEs adapt to their business environments. The findings show that these companies use their stakeholders' help in their strategic renewal both in sensing environmental changes and in seizing opportunities. In these companies, strategic renewal and thus environmental adaption is facilitated by the top management, especially the CEOs. Recent digital changes in these companies' business environments have created both challenges and threats for the companies. The companies responded to these threats by making internal and external developments to stay competitive. The companies have seized new opportunities digitalisation has enabled. The companies' resources and capabilities both among managers and employees hinder these companies to perform strategic renewal efficiently.

The findings show that companies have identified that their business environment has been changing because of digitalisation, as Chang and colleagues (2003) argue and the companies have reacted to this change. Most companies had identified opportunities that digitalisation has brought. This is in line with Agarwal and Helfat (2009), Amit and Zott (2001), Raymond and colleagues (2005) and Ward and colleagues (1995) who say that digitalisation create new opportunities and new ways to create value. Many of the companies had created digital features to their products and found new ways to communicate with stakeholders in new value-adding ways. To cope with these digital changes, nearly half of the interviewed companies had changed their business model to better utilise digital possibilities as Teece (2007), Antony (2012) and Lindgren (2012) suggest.

Even though digitalisation has created opportunities for Finnish manufacturing SMEs, it has also brought new challenges and threats for these companies. Raymond and colleagues (2005) discuss that digitalisation and globalisation resulting from it

has created need for better efficiency and increased productivity for manufacturing companies. The interviewed companies had reacted to these needs, as every company had invested in digital systems or digital manufacturing technologies to react to this need. In line with Löfving and colleagues (2014), the majority of the companies saw that digitalisation has increased and changed the competition. Janaratne (2014) Herdon and colleagues (2012), Arendt (2008) and Huovinen (2016) argue that digitalisation has created capability challenges for companies. This points clearly out in this thesis, as many companies saw their own digital capabilities were insufficient and these companies desired to hire new digitally capable employees but many responded that they were facing difficulties finding them. Still multiple companies had hired digitally capable new employees. As a result of insufficient digital capabilities, many companies stated they had difficulties recognising digital opportunities and needs for their companies, which is what Grégoire and colleagues (2010) argue.

To achieve a strategic fit with the environment, this thesis points out the importance of capable managers. Smith (2014) and Helfat and Martin (2015) discuss about capable management to achieve strategic fit with ambidextrous actions, but this thesis highlights especially the importance of the CEO and sales managers. Most companies answered that the most important channel for sensing new ideas is customer contacts and this is in most of the interviewed companies made by the sales employees and the CEO. The CEOs were also filters in many companies to decide which ideas to seize.

The CEOs and sales employees were responsible for scanning the environment to notice changes there and sense new customer needs. Companies used multiple channels to discover these changes. Almost every company said they visit their industry's fairs and some companies had begun to visit their suppliers' and customers' fairs to sense changes up and down the value chain. Some CEOs said they proactively search for new ideas from the Internet and reading industry media. The majority of the companies stated that the most important channel to anticipate environmental changes was to continuously discuss with their stakeholders, especially customers. This shows again the importance of capable managers and their "absorptive capacity" as Helfat and Martin (2015) discuss.

In addition to capable managers, this thesis points out the importance of capable board members. In the majority of interviewed SMEs, the board was responsible for creating a company's strategy. This means that in addition to capable managers, the board must have strategic capabilities to understand what the changes in the environment mean for the company and decide what is the optimal direction for the company.

Nearly every company said that their strategies were flexible to change in case of a new opportunity rising or the environment dramatically changing, which is what Nada and colleagues (2012) point out to be SMEs' advantage to large companies. This is also in line with Eisenhardt and Martin (2000), Teece (2007 & 2014) and Hodgkinson and Healey (2011) to enable seizing new opportunities. Only half of the companies said that they could successfully implement their strategies, which brings up the question if the companies are too flexible or set up too ambitious goals. Also in line with Binns and colleagues (2014) and Löfving and colleagues (2014) the findings show that SMEs have insufficient resources to perform strategic management. The majority of the companies stated that their daily operations require so much time that strategic management does not get enough time. This can also have effects to the insufficiently implemented strategies if the CEOs have not given required time to think about the options and choices the companies have.

In line with Tushman and O'Reilly (1996) and Simanis and Hart (2009), the findings show that companies are unwilling to change. This is partly because of inertia coming from the employees that are not willing or capable of changing but also because of the managers not willing to make required changes. The findings of "letting go syndrome" and "success syndrome" implicate this strongly. This brings more proof to Huovinen's (2016) findings of "success syndrome" in Finnish manufacturing SMEs.

To sense new ideas and opportunities, Finnish manufacturing companies use their networks both inside and outside their business environment. This supports Adler and Kwon's (2002), Helfat and Martin's (2015) and Mom and colleagues' (2009) arguments about social capital being an important way to sense opportunities. Nearly every company said they do cooperation with different stakeholders to create radical

innovations. For most companies, this was cooperation with other companies meaning partner companies, suppliers and customers. Slightly over half of the companies made cooperation with universities and almost a third with research institutes. This is in line with Teece's (2007) arguments of using the whole business ecosystem instead of just own capabilities to create radical innovations in a value-enhancing way.

The findings show that financial promises are the most important factor to seize sensed opportunities. Nearly every company stated that there has to be a business case, as proven customer demand for an opportunity to seize it. In line with Herdon and colleagues (2012) and Teece and colleagues (1997) also financing was important factor for companies to get an opportunity seized. As Teece (2007) says, the companies' capabilities also play a role in what opportunities they seize. To overcome capability issues, many companies used their stakeholders' help to seize ideas. As Lubatkin and colleagues (2006), Simanis and Hart (2009), Binns and colleagues (2014) and Martin (2011) say companies must make small experiments to seize opportunities. Nearly every company said they make these types of experiments. Also, the findings point out that new digital systems make these experiments easier than before. Some companies mentioned that they do experiments also externally with their customers and suppliers, which supports O'Reilly and Tushman's (2013), Raisch and colleagues' (2009) and Kauppila's (2010) arguments about external experiments and usage of external ambidexterity.

The findings show that managers' leadership skills are the most important thing to successfully get a company transformed. This is in line with Hodgkinson and Healey (2011), Teece (2007), O'Reilly and Tushman (2008), Helfat and Martin (2015) and Maritan (2005) who discuss the importance of capable managers to lead the transformations. The findings implicate that managers must create a positive culture towards transforming and changes among the whole company. To make this happen, managers must motivate the employees to change by visibly showing them why it is important to change and transform and show the incentives behind the transformation to get them motivated and willing to change their routines.

The findings show that Finnish manufacturing SMEs use contextual ambidexterity to adapt to their business environment. Some companies had made new internal struc-

tures to enable this more efficiently, which supports Teece's (2007) argument that new structures can help to adapt to the environment. Companies had also made resource changes to become more ambidextrous, which is in line with Teece (2014).

5.2 Implications

5.2.1 Implications for SMEs

This thesis suggests Finnish manufacturing SMEs to proactively involve their stakeholders in their environmental adaption attempts. Based on the findings, companies should especially involve their stakeholders in their sensing and seizing activities. As top management's, especially the CEOs', skills were identified to be crucial for successful strategic renewals, this thesis suggest the SMEs to invest in their managers skills' education. Third, this thesis suggests SMEs to invest in digital technologies. With bravely investing in these technologies, the companies can increase their productivity and efficiency and more easily internationalise their business and create new markets with digital tools. Finally, this thesis suggests SMEs to rethink and reform their business models and internal operations. Digitalisation has made changes in the ways of creating customer value and by involving digitalisation in the companies' business models, they can maximise the value capture form these new offerings. The companies should also rethink and reform their processes, routines and organisational structures to better suit digitalisation and continuous environmental adaption.

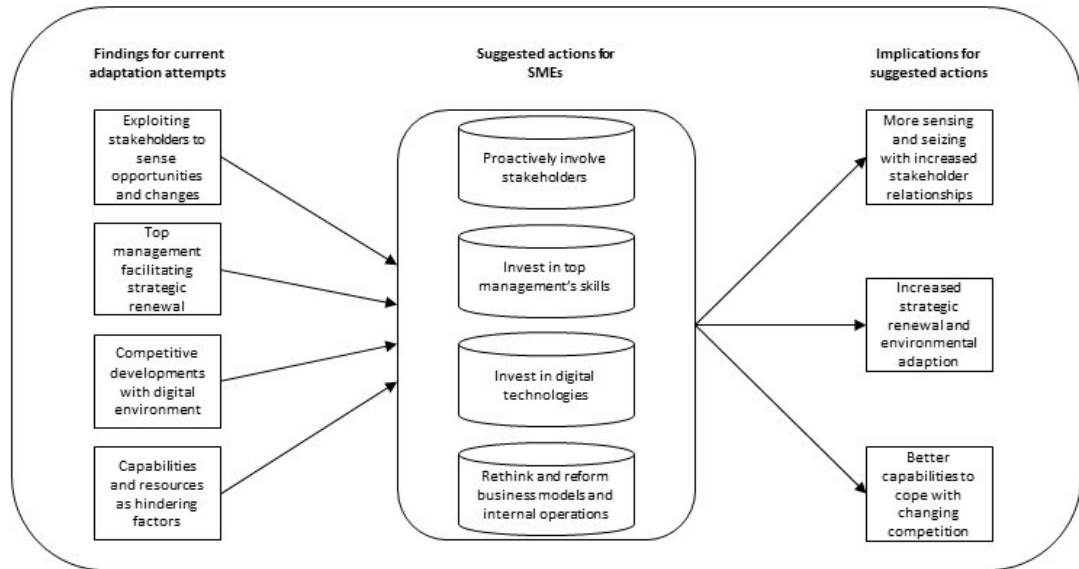


Figure 7: Implications for SMEs.

The findings show that the companies' stakeholders play a critical role in strategic renewal. They help the companies to anticipate changes in their business environments and help them in their explorative attempts. More concretely these helps can be information about market demands shifting to new directions and thus giving new ideas and opportunities to the companies or help in seizing opportunities as giving concrete demand creating business cases towards companies' new products and helping companies in creating new opportunities. Based on these findings, this thesis suggests the companies to proactively involve their stakeholders in adapting to their business environments.

To utilise more their stakeholders' help, the companies should create easy discussion channels that enable them to be in touch with different stakeholders as often as possible. With continuous discussions, the companies get information from different parts of the value chain giving them a broad picture of their whole business ecosystem. With this kind of broader view, the companies can sense even better the environment and recognise arising trends and anticipate changes that affect them. With daily communications, the companies also maximise their input of market information and thus the input of possible new ideas and opportunities. As the companies' customers were seen the most important factor for sensing new ideas, the companies should create internal organisational structures and daily routines that ensure that the

customers' feedback and market information goes from the salesmen to the CEOs who are responsible for seizing opportunities in the companies. These organisational structures and routines should also be created so that they maximise contextual ambidexterity in the companies.

To ensure that the companies get enough information from their business environments, they should proactively approach their partners, suppliers and customers. With this kind of approach, the companies can increase their market information to sense new ideas. Also after sensing an idea, the companies should proactively approach these stakeholders to help creating a business case for the idea and get help from the partners to experiment the ideas in a broader sense. When the companies get more ideas sensed and seized, they also transform more often, which means that they adapt better to their business environments.

The findings show that the companies' managers facilitate strategic renewal. This creates pressure for the managers to have required capabilities and knowhow to successfully take the companies forwards and renew them to better adapt to the changing environment. The findings show that there is a gap between the required capabilities and the managers to successfully enable transforming and creating strategic renewal. The managers of the companies should improve their capabilities, especially their leadership skills, to overcome this capability gap. By improving these skills, the managers can better facilitate environmental adaption by overcoming "success syndrome" and "letting go syndrome" that were identified among the companies. Better leadership capabilities also enable the companies to get rid of unnecessary change resistance and inertia that were found to hinder transformations.

Digitalisation has created competitive challenges to the companies. To compete even better in their increasingly competitive markets, the companies should bravely invest in new digital technologies to increase their efficiency and productivity. These new digital investments help the companies to create new digital opportunities in both their products and their routines. The companies desire to grow abroad and internationalise and the findings show that modern digital sales and marketing tools enable this type of growth and creation of new markets. The findings also show that digital technologies can be used to test sensed ideas more easily and cheaply, which in-

creases the possibilities for new kind of opportunity seizing. But investments in digital technologies are not enough by their own. Using new digital technologies and tools require the companies to rethink their business models to maximise the added value these investments bring. Digital technologies can also change the processes and routines of the companies, which require rethinking the processes, routines and organisational structures to better suit possible changes.

The findings indicate that the companies have issues with digital capabilities. Simultaneously the findings show that the companies have lack of resources. This clearly indicates that the companies should hire more digitally capable employees. This would improve the companies to recognise their digital needs and opportunities. The companies say that they are already doing this and the actual issue is to find and get the capable enough employees to these companies. This creates a chance also for Tekes to help these companies to overcome these issues.

5.2.2 Implications for policy makers

This thesis suggests Tekes to help the companies to find capable resources and educate their existing employees and to increase their efforts in helping companies in the sensing part of the dynamic capabilities framework in addition to the seizing part as financial aids. To do this, Tekes should facilitate learning and networking events for the managers of the companies. In addition to this, Tekes should facilitate support for the companies to bring capable employees and the companies together.

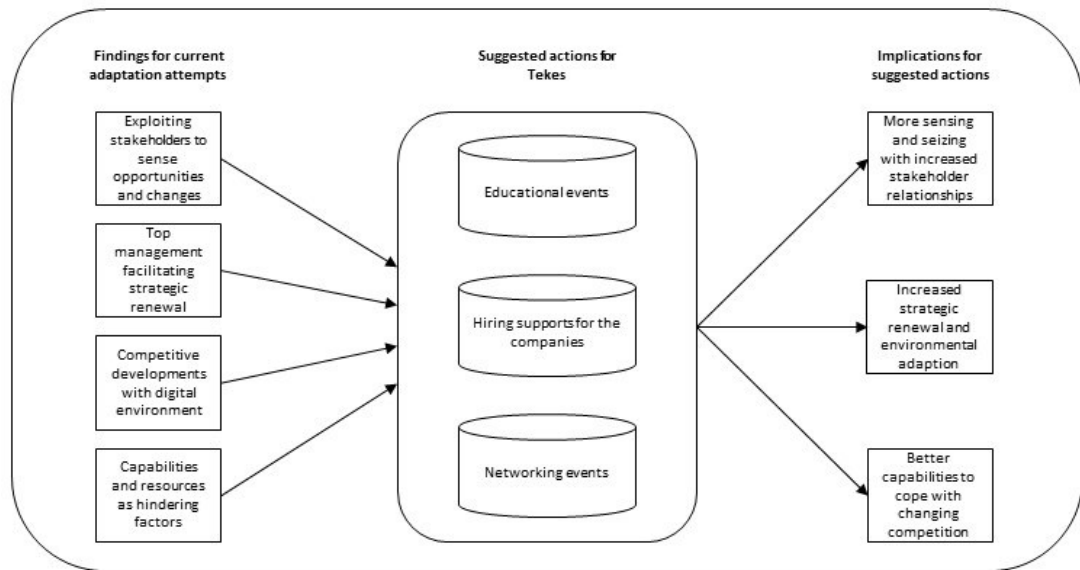


Figure 8: *Suggested actions for Tekes.*

With facilitating learning events for the companies, Tekes can help the companies to overcome their capability issues. Educating the managers of the companies, especially with digitalisation, the managers can spread the new knowledge in their companies to overcome some of the lack of digital capabilities. This can help the companies to better recognise their digital needs and new digital opportunities. With better understanding of the possibilities that digitalisation brings, companies can better adapt to the digitally changing business environment and create competitive developments to cope with the competition by seizing new opportunities.

As the managers were identified to be facilitators for strategic renewal, helping the managers to improve their leadership skills can help the companies to overcome their unwillingness to change. First, with better leadership skills the managers can better understand the importance of getting rid of “success syndrome” and “letting go syndrome” in their own work. Second, with better leadership skills, the managers can even better visualise the reasons for change and motivate the employees of the companies to change their routines and learn new skills and thus transform more successfully. With more successful transformations, the companies perform more strategic renewals, which enables the companies to better adapt to their environments.

By educating the managers and helping the companies to understand the importance of strategic renewal, the companies can better utilise contextual ambidexterity. With

better capabilities, the managers can renew their routines and organisational structures to increase ambidexterity in happening in their companies. By visibly showing to the companies that using stakeholders' help with radical innovations, the companies can be encouraged to proactively approach their stakeholders and help them to sense and seize more ideas and opportunities. With more communications between companies and their stakeholders, the companies get more information about the market and they can better anticipate changes and adapt to the environmental changes with better competitive responses. By increasing the interactions between the companies and their stakeholders, the companies can also get deeper with these relationships and make more cooperation with explorative attempts.

By bringing together capable employees and the companies, Tekes can help the companies to overcome capability and resource issues. As the companies were facing challenges to find and hire capable employees, facilitating hiring support for the companies can help the companies to get the desired new capabilities they are missing currently. When the companies can get more capable resources, this can free time for the managers to perform strategic management and the development employees to develop radical innovations aside by their daily routines. With more strategic management, the CEOs of the companies can more think about different options for the companies and develop their organisations internally to better enable adapting to the environment. As the companies saw their own capabilities being insufficient to develop new things, this can also help companies to seize new opportunities they were before unable to seize. With more seizing opportunities, the companies also transform most likely more than before, which creates more strategic renewal and adaption to the changing business environment.

Finally, this thesis suggests Tekes to facilitate networking events for the companies. The findings show that the companies' stakeholders help companies to anticipate environmental changes and also help the companies with cooperation in their explorative attempts. By bringing companies and their managers together, the companies can create new partnerships and increase the number of their shareholders. With more cooperative stakeholders, the companies can fill their capability and resource gaps with their stakeholders' help.

Networking events create sharing of information between the companies' managers. By bringing companies together and getting people from different industries discussing with each other, companies can get new ideas from these discussions. The findings show that social capital is a central channel for new ideas and opportunities and networking events are a great way to get people discussing about how they do certain things in certain industries. In addition to sensing new ideas and market trends, the companies can also discuss about best practices and gain new knowledge about their issues. With digitalisation issues, this can be very productive as many of the companies seem to have similar issues and the managers could share their knowledge about working solutions to solve these issues and share valuable information instead of every company trying the same costly solutions before finding a suitable one. For example, as the companies say that they desire to internationalise and increase their sales and marketing efforts abroad, those companies that actually had succeeded in it with digital solutions could share their knowledge about successful digital tools for doing this.

With networking events, the managers can share their knowledge and best practices also about other than digitalisation related issues. Managers can share their successful experiences from transformations giving other managers new ideas how to actually get the employees to change their routines and motivate them to learn new skills. Managers can find out new channels to sense new ideas and scan the environment for changes from successful examples from other managers.

These type of networking events support educational events because in these events the managers get to discuss with each other about concrete cases from possible learnings from the educational events. The issue with these events is that the company members should be able to openly discuss these issues instead of listening to a seminar, which favours a workshop-style event to get the companies' managers to actually discuss with each other.

6. CONCLUSION

6.1 Purpose of the thesis and key results

The main purpose of this thesis was to study how Finnish manufacturing SMEs adapt to their changing business environments. To understand this, the thesis focused on investigating how these companies perform strategic renewal and how the interested scope of companies have reacted with their strategic management to the digitally changed business environment. This thesis also focused on findings out hindering factors for these companies' strategic renewal. This thesis focused on previous literature to ambidexterity as a key concept to cope with changing business environments. This thesis also focused on Teece and colleagues' (1997) dynamic capabilities framework as a key mechanism for ambidexterity. Finally, the literature focused on SMEs and their adaption to changing business environments from digitalisation's point of view.

Finnish manufacturing SMEs use their CEOs' and salesmen's capabilities to sense the environment. They constantly discuss with their stakeholders, as suppliers, customers and partner companies to sense possible changes in customer demand and broader changes in their business environment. They also visit different industry fairs, follow industry media and proactively search the Internet for new ideas. The companies are flexible with their strategies to change the direction if they sense need to react to emerging environmental changes. To adapt to the changing environment, Finnish manufacturing SMEs also perform cooperation with different stakeholders to create radical innovations and make experiments to test sensed ideas and opportunities. The most important enabler for seizing opportunities was financial promises, as business case behind the opportunity. Also, this thesis highlights the importance of top management's leadership skills, as the findings show that the managers must visibly show the reasons behind transformations to the employees and get them motivated to change their routines to successfully transform a company to match the new and old. Finnish manufacturing SMEs utilise contextual ambidexterity to adapt

to the environment and companies had made internal structure changes as well as resource changes to better enable this. The companies' capabilities and resources were identified to hinder strategic renewal in Finnish manufacturing SMEs.

To react strategically to the digitally changing business environment, Finnish manufacturing SMEs had sensed and seized digital opportunities, as creating new digital features to their products, created new business models to create more value and adopted new routines that utilise digital technologies. To react to the changes and new requirements in the market, these companies had invested to digital systems and digital manufacturing technologies to increase efficiency and productivity to stay competitive. The companies had recognised need for new capabilities that they did not possess and they had hired new digitally capable employees or were looking for them.

6.2 Key implications

This thesis creates several suggestions to Finnish manufacturing SMEs. These companies must invest in their managers' leadership education, as leadership was seen as the most important enabler for successful transformations. To enable successfully transforming, the managers must get rid of "letting go syndrome" and "success syndrome" to actually enable renewals and lose their unnecessary assets and resources. Also, better leadership skills help overcome change resistance and inertia identified in the companies. The companies must create continuous discussion channels between the top management, salesmen and development responsible employees to maximise the input of new ideas and opportunities and get the promising opportunities seized. Companies must utilise their stakeholders as much as possible to scan environmental changes and discuss new ideas with them. Companies should proactively discuss new ideas with their new and especially existing customers as financial promises were seen as the most important enabler for seizing opportunities.

Simultaneously, companies must find the right balance between exploration and exploitation to stay competitive and proactively adapt to the environment by also shaping the ecosystem their selves. The companies should rethink their business models to even better utilise digital opportunities and change their structures and routines to

enable possible changes. These new routines and structures should also be made optimal to enable contextual ambidexterity. Companies should continue making experiments with new ideas to test them, but they could even more utilise digital technologies to more easily and cheaply make them. Companies should also take along their suppliers, customer and partner companies to these experiments. Finally, the companies should bravely invest in digital technologies to increase their productivity and efficiency and use these new digital tools to create new opportunities for them.

Probably many companies see Tekes more as a part of the seizing part of the dynamic capabilities framework, as giving financial aids to radical innovations. This thesis suggests that Tekes would increase its efforts in the sensing part in addition to financial aids as finances were seen as an important enabler for seizing opportunities. Tekes should understand that sometimes the financial aids to technologies can be important for SMEs as they enable seizing new radical opportunities and cannot always be seen as innovation funding.

As Finnish manufacturing SMEs have issues recognising their digital needs and opportunities, Tekes should facilitate educational and networking events for the companies to share knowledge and best practices among the companies and help the companies' managers to develop their skills. Simultaneously, as companies see that their own capabilities and knowhow are insufficient to create more radical developments, Tekes should facilitate support for the companies to find capable employees. Bringing companies and capable employees together also facilitate creation of new partnerships in addition to sharing of information between the companies. As social capital was seen as a good channel for sensing new opportunities and stakeholders were seen to enable successful transformations, this can be seen helpful for many SMEs. Also gaining new knowledge about new digital possibilities in the events can help SMEs to invest in modern sales and marketing tools that they were not aware of and help the SMEs' internalisation attempts and thus create new markets for many companies.

6.3 Contributions

This thesis contributes to Grégoire and colleagues' (2010) proposed further research about factors that can facilitate efforts to recognize opportunities by pointing about continuous close contacts with companies' stakeholders to sense the business environment. This was seen as a facilitating factor for opportunity recognition. This thesis also contributes to Gupta and colleagues (2006) suggested further research about inter-firm networks on exploration by showing that inter-firm networks can enhance exploration activities. The findings of this thesis show that sensing and seizing activities across companies have a positive effect on exploration attempts. Finally, this thesis contributes to Teece and colleagues' (1997) further research suggestions about how companies get good and how they stay that way. This thesis shows that companies stay good by continuously sensing their environment and seizing ideas with experiments and utilising their stakeholders and the entire business ecosystem and taking the best opportunities that are implementable further by visibly transforming the company to match the new and old becoming a functioning entity.

6.4 Limitations

There are some limitations affecting this thesis. The interviews contained a lot of data and there were opposite answers to many questions by different interviewees. Generalising these answers to the majority of the answers made the analysis for this thesis, which means that the findings of this thesis are not the only way strategic renewal should be done. For example, there were some companies that were structurally ambidextrous but the clear majority of the companies were contextually ambidextrous.

The scope of this thesis was rather broad and this thesis consists of answers from twenty-three companies, which is only a very small amount of companies fitting the scope. Because of this, the generalisation of the findings can be questioned. Also as the interviewed companies were chosen from Tekes' client companies, these companies have got support from Tekes and might be in better positions with the topics of this thesis than many other companies. All interviewees were not CEOs who were making strategic decisions. Because of this some respondents may have answered

from the point of view of what they believe their CEO would answer the questions limiting the truth in the answers.

6.5 Further research

This thesis raises interesting further research options. First, it would be interesting to more closely study what would be the other ways and channels for Tekes and SMEs to get closer and share knowledge that the companies are lacking. And keeping this in mind, what would simultaneously be the best way for companies to sense new opportunities. Second, it would be helpful especially for the companies to study how the companies in the scope of this thesis can get rid of unwillingness to change. In other words, how the companies can get rid of “letting go syndrome” and “success syndrome” and enable effective strategic renewal. Finally, it would be interesting to study how these SMEs can acquire required capabilities to them to enable radical developments that they are currently missing and looking for without success.

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APPENDIXES

Appendix 1: The data structure.

